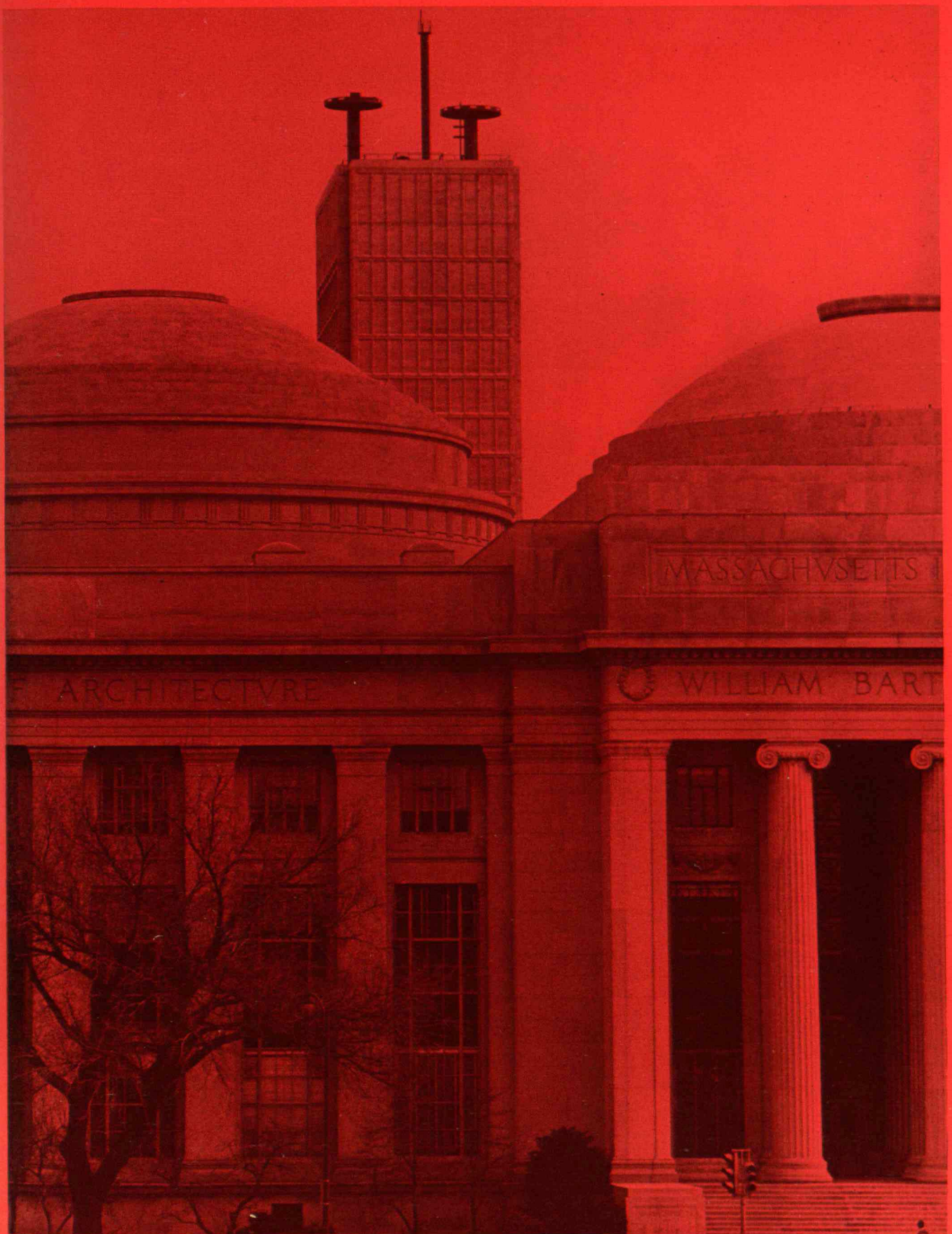


Technology Review

Edited at the Massachusetts Institute of Technology



April, 1964

The Changing Campus, Pages 11 to 15

technology review

Published by MIT

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Pershing, the Army's most powerful weapon, is now operational with trained, combat-ready Army crews.

It is part of our defense arsenal. Standard. Field tested. G.I.

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and deserts of New Mexico.

Delivery date of the first tactical artillery equipment was met a month ahead of schedule.

Cost reduction procedures provided more than \$20 million in additional equipment services at no increase in contract cost and have saved the government more than \$2 million in the past year.

Under the direction of the U.S. Army, Martin is the prime contractor for Pershing.

G I



At Martin, systems management means the best possible product in the shortest possible time at the lowest possible cost.

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Philip Stocker: Friend of the Family

PHILIP W. STOCKER, a Senior V. P. of the New England Merchants Trust Department, has attended more than one customer's wedding — as a friend of the family. His presence reflects our policy of personal service. "We like to think our trust officers are the kind of people you'd like your family to know," Phil says, "... capable, thoughtful, trustworthy and congenial. With several of them serving each account, we can maintain the *continuity* of service every trust requires."

PHIL'S WORK BEARS OUT HIS WORDS. One day recently, he lunched with the college son of an American family living in Tahiti, whose trust he has handled for three decades; settled a portfolio problem with a Denver customer by telephone; and met the family of a new trust customer.

IF YOUR FAMILY'S TRUST could benefit from the continuing interest of a "family banker", talk to Phil Stocker soon at our Trust Department, 135 Devonshire St., RIchmond 2-4000.



NEW ENGLAND MERCHANTS

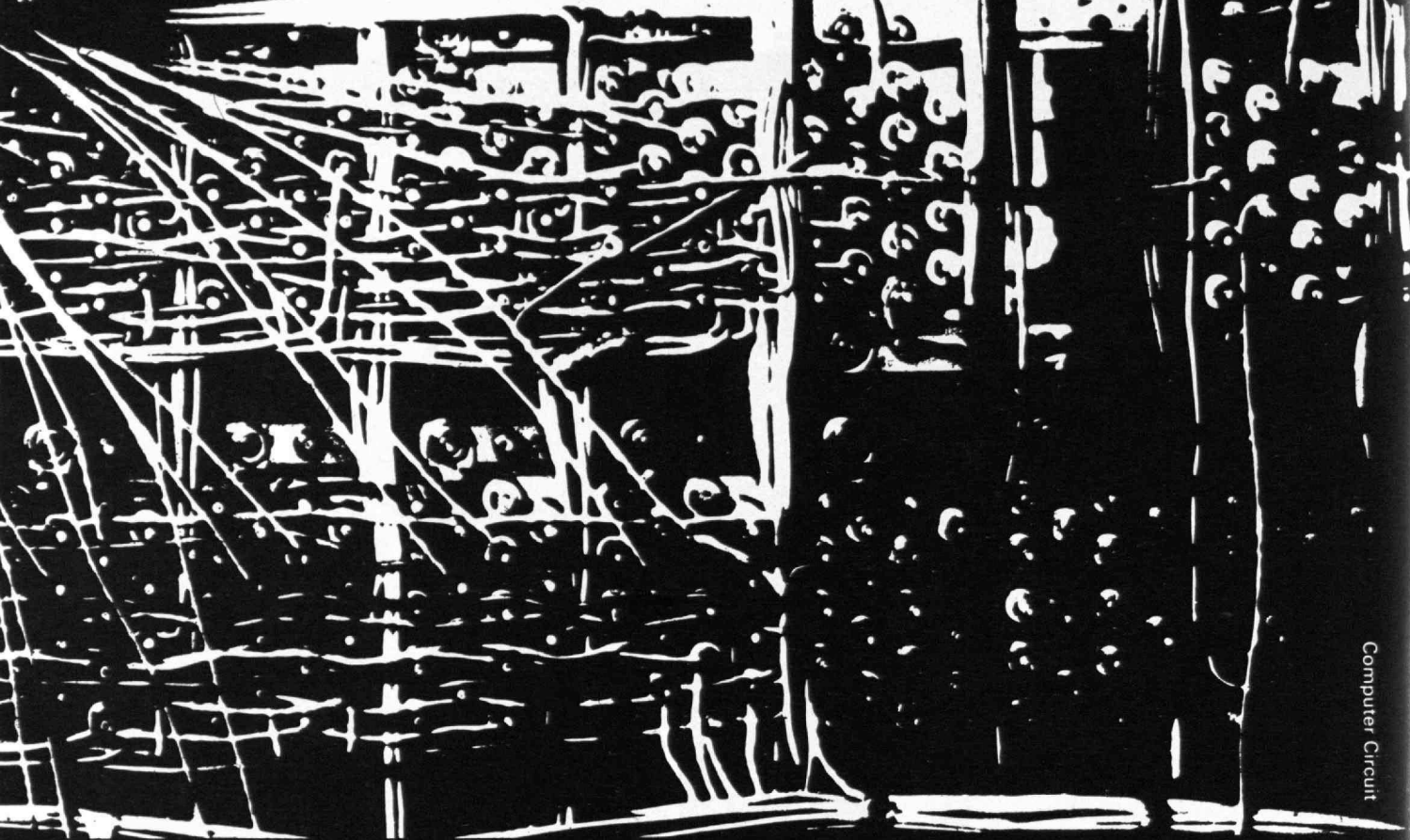
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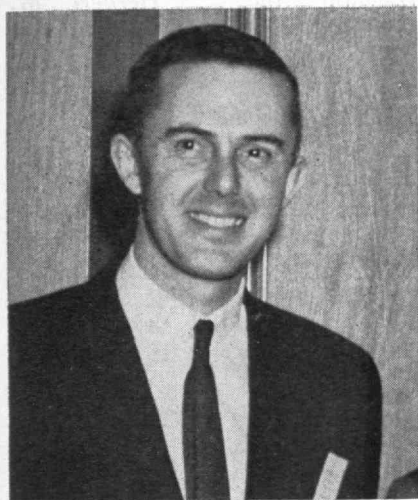


Computer Circuit



Lincoln Laboratory, a research center of the Massachusetts Institute of Technology, conducts investigations in advanced electronics directed toward the solution of problems of national defense and space exploration. The *General Research* program provides a background of experience and ideas for programs concerned with specific defense and space problems, as well as a continuing source of contributions to electronics science and technology. All qualified applicants will receive consideration for employment without regard to race, creed, color or national origin. Lincoln Laboratory, Massachusetts Institute of Technology, Box 28, Lexington 73, Massachusetts.

Solid State Physics
Information Processing
Radio Physics and Astronomy
Radar Design
Control Systems
Space Surveillance Techniques
Re-entry Physics
Space Communications
A description of the Laboratory's work will be sent upon request.



Technology Review

Reg. U.S. Pat. Off.

Edited at the Massachusetts Institute of Technology

Volume 66, Number 6

Contents

April, 1964

For HALSEY C. HERRESHOFF, '60, and others at M.I.T., competition for the America's Cup this year already has begun—for they have been testing hull designs for the Nefertiti in a towing tank, with the help of two big computers (see page 19).

TECHNOLOGY REVIEW is published monthly from November to July inclusive, on the 27th day of the month preceding the date of issue, by the Alumni Association of the Massachusetts Institute of Technology. All correspondence regarding its editorial contents, subscriptions, advertising, and changes of address should be addressed to:

Room 1-281, M.I.T.,
Cambridge, Mass. 02139

The Review's publisher and editor is *Volta Torrey*; business manager, *R. T. Jope*, '28; assistant to the editor, *Ruth King*; and class news editor, *Roberta A. Clark*. Editorial consultants are *J. J. Rowlands*, *Francis E. Wylie*, and *John I. Matill*. Members of its staff are *Joyce Skinner* and *Maxine Kenny*.

Officers of the Alumni Association of M.I.T. are: *Robert H. Winters*, '33, President; *Donald P. Severance*, '38, Executive Vice-president; *F. Leroy Foster*, '25, and *Samuel A. Groves*, '34, Vice-presidents; and *Frederick G. Lehmann*, '51, Secretary.

An annual subscription to Technology Review is \$4 in the U.S., \$4.50 in Canada and elsewhere, and a single copy, 60 cents. Three weeks must be allowed to effect a change of address, for which both the old and the new address of the subscriber should be given.

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The Cover shows the Massachusetts Avenue entrance to M.I.T. and the top of the Green Center for the Earth Sciences from which the weather is to be observed by radar.

The Management School Honors Two Benefactors

11

It now bears Alfred P. Sloan's name and the new building being erected near its present home will bear the name of Grover M. Hermann.

This Spring in Cambridge

14

A pictorial report by Bob Lyon on the new Student Center, the new Materials Center, and the new Life Sciences Center.

The Trend of Affairs

16

The Northern New Jersey Club will be host to a regional alumni conference in April, and alumni visitors to M.I.T. will learn about research pertinent to health next June 15.

Integrity and the Contemporary Scientist

17

Institute Professor Norbert Wiener, in an informal talk to students, explains the importance of keeping the monkeys away from the typewriters.

Computing for the America's Cup

19

Model hulls of sailing yachts are being tested in the M.I.T. Towing Tank by Assistant Professor Justin E. Kerwin, '53, and Halsey C. Herreshoff, '60, preparatory to this year's race.

From Outboards to Space Trains

21

Photographer George Woodruff reports on various ways of propelling things that students of aeronautical engineering are exploring this year.

The Theater at M.I.T.

24

Dramashop is thriving and its alumni are play-acting in community theaters in both North and South America.

Lasers in the Operating Room

25

Dr. Ronald A. Malt describes the potentialities of these new devices both in biological research and in surgery.

New Books

28

M.I.T. reviewers report on an impressive big volume written mainly by a computer, and others concerned with foreign affairs, bridges, and tunnels.

Institute Yesteryears

32

Items that were new at M.I.T. 25, 50, 75, and 100 years ago, as recalled by the late H. E. Lobdell, '17.

The Crowd Grows Faster Than Crops

34

Martin Mann, '41, summarizes the discussion of the population problem at a meeting of the Alumni Center of New York.

Individuals Noteworthy

New Posts

NAMED in the news of promotions, elections, and appointments recently were:

Robert B. Sosman, '04, and *Karl L. Fetters*, '40, as Fellows, The Metallurgical Society, American Institute of Mining, Metallurgical, and Petroleum Engineers . . . *Parke D. Appel*, '22, as an Associate, William H. Coburn and Company;

Samuel H. Reynolds, '22, as Vice-president—Sales, Great Lakes Carbon Corporation . . . *Alfred T. Waidelich*, '30, as Executive Vice-president—Engineering and Research, The Austin Company . . . *Earle E. Langeland*, '31, as President and Chief Executive Officer, American Maize-Products Company;

John E. Spalding, '31, as Vice-president—Manufacturing, Nekoo-sa-Edwards Paper Company . . . *Dayton H. Clewell*, '33, as a Senior Vice-president, Socony Mobil Oil Company, Inc. . . . *David B. Smith*, '33, as Visiting Professor of Electrical Engineering, Moore School of Electrical Engineering, University of Pennsylvania;

Samuel A. Groves, '34, as a Corporation Member, Northeastern University . . . *Donald K. Lister*,

'34, as Assistant Vice-president, Personnel Department, Chemical Bank New York Trust Company . . . *Lawrence C. Hall*, '35, as President, New Hampshire Insurance Company, Manchester;

Duane O. Wood, '37, as President, Lockheed Aircraft Service Company, and as a Corporate Vice-president, Lockheed Aircraft Corporation . . . *Major General Austin W. Betts*, '38, as Special Assistant to the Chief of Research and Development, Department of the Army . . . *William S. Brewster*, '39, as a Director, The First National Bank of Boston;

M. Wren Gabel, '39, as Executive Vice-president, Eastman Kodak Company . . . *Wesley A. Kuhrt*, '39, as Research Director, United Aircraft Corporation . . . *Francis W. Sargent*, '39, as a Commissioner, Department of Public Works, Massachusetts;

Charles V. F. DeMailly, '40, as President, Plymouth Cordage Company . . . *Kenneth R. Fox*, '40, as Vice-chairman, Fabric Research Laboratories, Inc. . . . *Rear Admiral William B. Sieglaff*, '41, as Commandant, First Naval District, Boston;

George J. Schwartz, '42, as President and Chief Executive Officer,

Magnion, Inc. . . . *Herbert M. Johnson, Jr.*, '43, as Vice-president—Engineering, Edo (Canada) Ltd. . . . *Robert Oppenlander, Jr.*, '44, as Vice-president—Finance, and Treasurer, Delta Air Lines;

Carroll J. Brown, '46, as Director of Management Development, The Singer Company . . . *Ralph W. Rawson*, '46, as President and as a Director, Firth Sterling, Inc. . . . *Thaddeus M. Nosek*, '47, as Director of Public Works, West Hartford, Conn.;

Colonel Pierre V. Kieffer, Jr., '48, as President, Vermont Technical College . . . *G. Bruce Kline*, '48, as Director, Elanco Products Division, Eli Lilly & Company (Canada) Ltd. . . . *Peter Thornton*, '48, as Manager—Operations Planning, United States Envelope Company;

David E. Webster, '50, as Executive Vice-president, Beneke Corporation . . . *Malcolm Chamberlain*, '51, as Chairman, Division of Cellulose, Wood, and Fiber Chemistry, American Chemical Society . . . *Cedric F. O'Donnell*, '51, as Vice-president, Research and Development, Autonetic Division, North American Aviation;

Arthur S. Chivers, '52, as Manager, Wright Line Division, Barry Wright Corporation . . . *Dr. J. David Robertson*, '52, as Associate Professor of Neuropathology, Harvard University . . . *Richard J. DeCloux*, '53, as Vice-president, Beede Electrical Instrument Co.

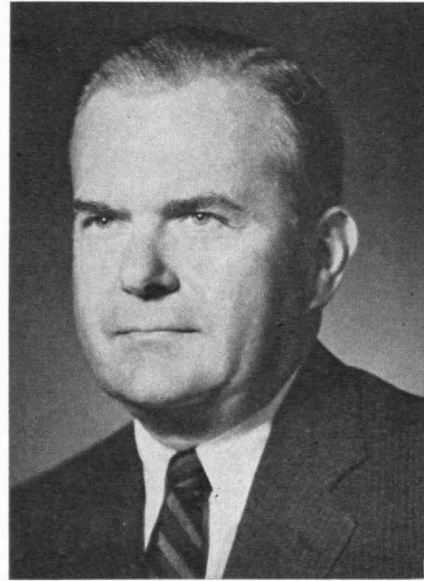
(Continued on page 6)



PROPOSED for Alumni Term Membership on the M.I.T. Corpor-



ation, on ballots sent to Alumni this spring, were (from left to right)



Samuel A. Groves, '34, Ivan A. Getting, '33, and Emilio G. Collado, '31.



Is it news that a leading maker of spacecraft alloys had a hand in dolling up Mildred Kinne's potting shed?

It isn't really surprising that a single U.S. corporation provided the metal for the outer skin of Mercury space capsules. It's perfectly natural to be called in on that kind of a job when you lead the nation in developing a line of alloys that resist extreme heat, wear and corrosion.

You'd also expect that a leading producer of petrochemicals could develop a new base for latex paint—called "Ucar" latex—since paint makers are among its biggest customers. Now Mildred Kinne can paint right over a chalky surface without priming. It's dry in minutes. And her potting shed will look like new for many New England summers and winters.

But it might indeed be surprising if both these skills were possessed by the same company. Unless that company were Union Carbide.

**UNION
CARBIDE**

Union Carbide also leads in the production of polyethylene, and makes plastics for packaging, housewares, and floor coverings. It liquefies gases, including oxygen and hydrogen that will power rockets to the moon. In carbon products, it has been called on for the largest graphite shapes ever made. It is the largest producer of dry-cell batteries, marketed to millions under the trade mark "Eveready." And it is involved in more atomic energy activities than any other private enterprise.

In fact, few other corporations are so deeply involved in so many different skills and activities that will affect the technical and production capabilities of our next century.

It's already making things a great deal easier for Mildred Kinne.

UNION CARBIDE CORPORATION, 270 PARK AVENUE, NEW YORK, N.Y. 10017. IN CANADA: UNION CARBIDE CANADA LIMITED, TORONTO
Divisions: Carbon Products, Chemicals, Consumer Products, International, Linde, Metals, Nuclear, Olefins, Ore, Plastics, Silicones, Stellite and Visking

Individuals Noteworthy

(Continued from page 4)

Awards to Professors

HUSTON SMITH, Professor of Philosophy, has received a Danforth Associate Award, for interdisciplinary studies in the 1964-1965 academic year. . . . *Kenneth M. Hoffman*, Associate Professor of Mathematics, and *Dietmar Seyferth*, Associate Professor of Chemistry, have been named Alfred P. Sloan Research Fellows and awarded two-year unencumbered grants for basic research.

Space Conferees

VICE-PRESIDENT James McCormack, Jr., '37, of M.I.T., Robert C. Sprague, '23, and Franklyn W. Phillips, '41, are serving on the Steering Committee for a National Conference on the Peaceful Uses of Space to be held in Boston next April 29 to May 2. Professor John V. Harrington, '58, Director of the M.I.T. Center for Space Research, is on the committee responsible for the program.



JACK WOOD, '17 (shown on the Coast Guard's "Curlew" in a 1946 Bermuda Race), toured Canada in March in behalf of a national college sailing program similar to the one he pioneered in the United States. He will retire as M.I.T.'s sailing master next June at the age of 70.

The objective will be to enlighten New Englanders regarding opportunities in space, and the National

Aeronautics and Space Administration is arranging an exhibit at Northeastern University that will be comparable to its Paris Show of 1962. Among the exhibits will be equipment and clothing designed for astronauts exploring the moon.

(Concluded on page 8)

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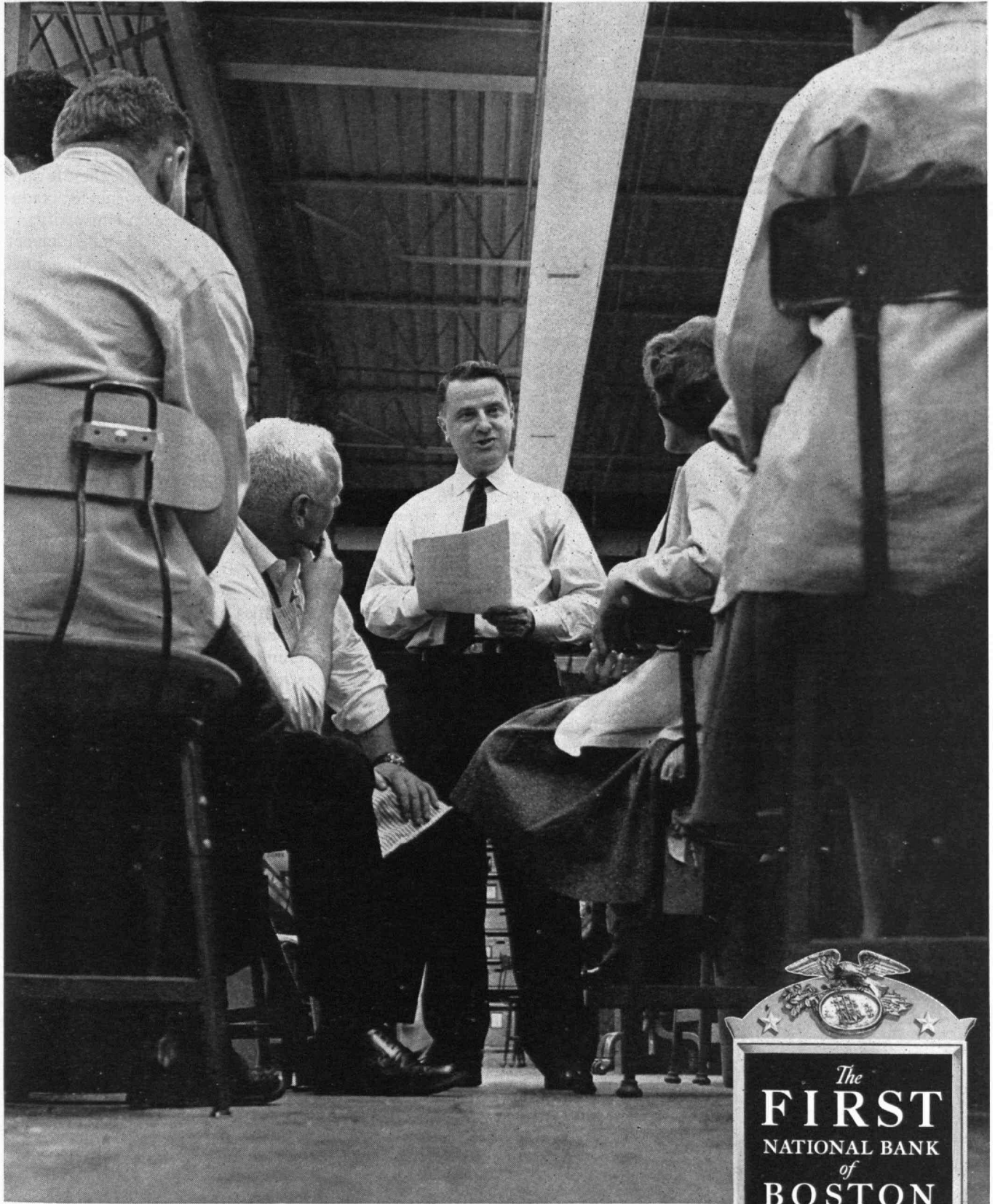
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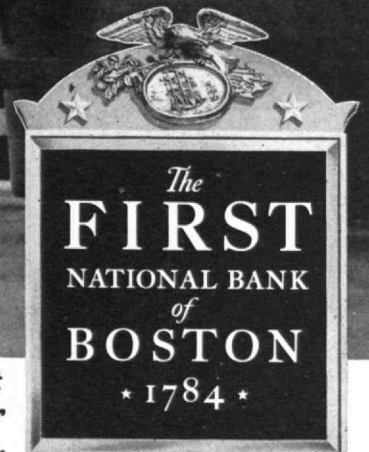
101 Park Avenue, New York

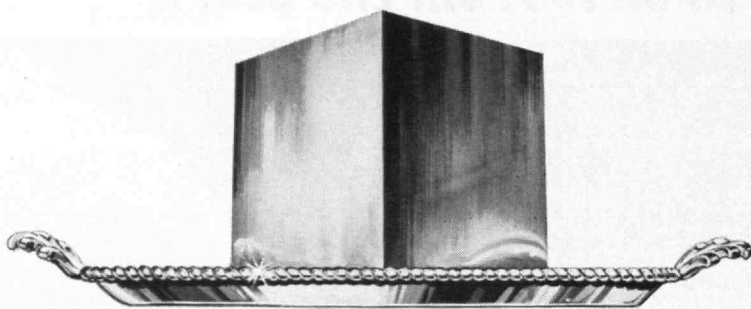
Alfred T. Glasett, '20, President

***"We took no chances with this new pension plan—
had The First Team* in on it from the start."***



****The First Team in New England banking: the officers and staff of The First National Bank of Boston and its allied institution, Old Colony Trust Company. Their business is to help you in your business, whatever it may be. Call in The First Team.***





IMPERVIUM, Anyone?

The *ultimate material* was well-known to a generation of Buck Rogers' buffs as far back as the early 1930's. Called Impervium, it was an intriguing metal with an apparently infinite tensile strength, and complete resistance to practically everything, including meteorites and disintegrator rays.

In this new space age of ours, where fact overshadows fiction on every side, the *ultimate material* seems a little less awe-inspiring than it used to. Every day researchers are facing up to demands for new metals, plastics, and composites, many of which seem, initially, as far from practical realization as Impervium.

To meet such demands, a completely new, advanced approach to materials technology has been developed. This approach has been described as "molecular engineering — the building of materials to order, the design of materials with properties prescribed for the purpose at hand."

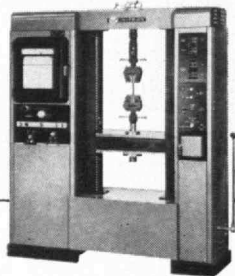
In his new creative role as a manipulator of fundamental, molecular building blocks, the physical researcher is faced with a critical need for sensitive and flexible instrumentation with which to monitor and evaluate his results.

We are pleased that Instron Universal Test Instruments are playing a significant role in meeting this need.

As you read this, Instron testers in laboratories around the world are being used to investigate the effects of dislocation in single crystals, the rheology of high polymers, the performance of refractory metals and ceramics at high temperatures, the behavior of films in cryogenic environments, the characteristics of new composite materials and material systems and many other areas vital to the development of new materials. One of these laboratories may yet come up with Impervium. If they do, it will probably be evaluated on an Instron instrument.

If you are concerned with the physical properties of materials, we have information which will be of interest to you. Reprints of a number of technical papers describing new or unusual techniques in the testing field are available upon request. If you will tell us your field of interest, we will be happy to send appropriate literature.

Write Department B-22,
Instron Engineering Corp.,
2500 Washington Street,
Canton, Massachusetts.



INSTRON
ENGINEERING
CORPORATION
2500 Washington Street
Canton, Massachusetts



Individuals Noteworthy

(Concluded from page 6)

Honors to Alumni

RECIPIENTS of recent awards and similar distinctions have included:

William Webster, '23, the New England Award by the Engineering Societies of New England . . . *Lieutenant Colonel Gilbert N. Woods*, '42, the Outstanding Unit Award by the U.S. Air Force . . . *Edward C. Clark*, '50, the Howard Hunt Garmany Fellowship for graduate work at Princeton University;

John R. Myer, '52, and Fletcher Ashley (Harvard, '50), the First Prize, for the design of the new Boston Architectural Center . . . *Thomas A. Faulhaber*, '53, and *Peter S. Eagleson*, '56, respectively, the Daniel W. Mead Prize and a Research Prize by the American Society of Civil Engineers;

Emil A. Tessin, 2d, '53, "Top Performer of 1963" citation by House & Home magazine.

Faculty Notes

PROFESSOR DAVID J. ROSE, '50, was one of 10 U.S. specialists in plasma physics who were invited to visit facilities in the U.S.S.R. in February as part of a science exchange program. . . . Professor *John T. Norton*, '18, has been asked by the M.I.T. President to explore opportunities for students to study abroad as an integral part of their professional education. . . . Provost *Charles H. Townes*, in addition to helping the educational TV network cover lasers, appeared on a CBS program, "Tomorrow Was Yesterday," in January, and helped The Princeton Report, Inc., produce a tutorial film entitled "The Laser." . . . Professor *Evsey D. Domar* is on the editorial board of *The American Economist*.

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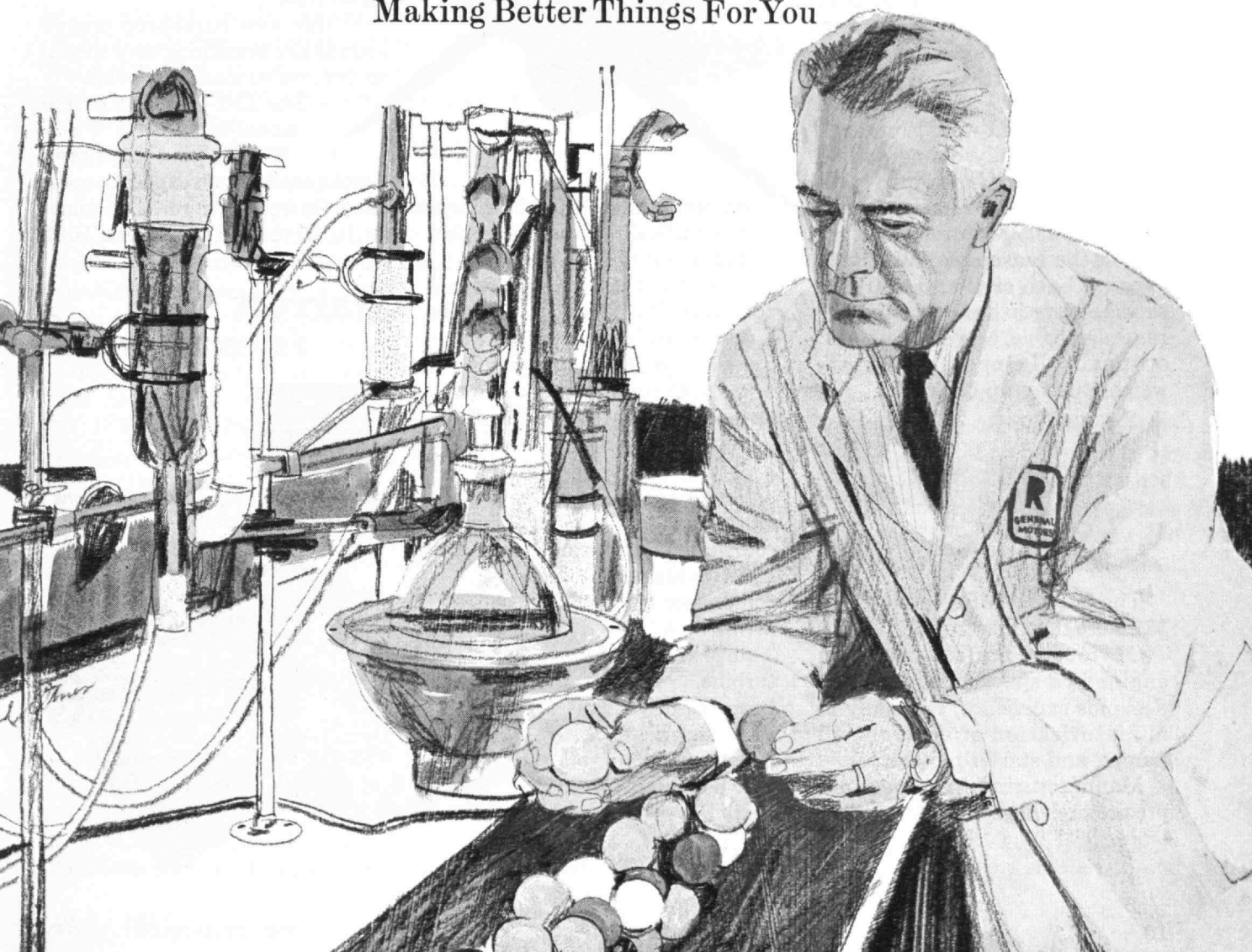
He's one of more than 400 graduate engineers and scientists at the General Motors Research Laboratories, Detroit, who devote full time to pure and applied research . . . seeking new information, new and better ways of using existing knowledge.

Their work is not confined to discovering new products for GM or improving present products. A good share of their time and talent is aimed at answering basic questions. How do metals wear out? What factors govern the properties of semiconductors? Why is one lubricant better than another? To make the unknown *known* in the sciences of physics, chemistry, mathematics, mechanical engineering, metallurgy and electronics—that's the continuing aim of the General Motors research team.

GM's vitality is people—more than 600,000 employees, thousands of dealers and suppliers and over a million shareholders. Today and in the future . . . the basic essential of GM is *people*.

GENERAL MOTORS IS PEOPLE . . .

Making Better Things For You



Everything we learned from building 10,000 small gas turbine engines has been packed into this new 600-horsepower turboprop engine —and it shows!

You'd probably expect the world's largest manufacturer of small gas turbine engines to turn out the world's finest small turboprop job.

And we have.

We call our new engine the TPE-331. (The military version is designated T-76.) It is a versatile turbine capable of powering many vehicles. Its 600-horsepower category makes it particularly suitable for the new generation of executive and military fixed-wing aircraft.

More specifically, our new prime propulsion engine is designed to fill the gap between reciprocating engines and larger turboprops.

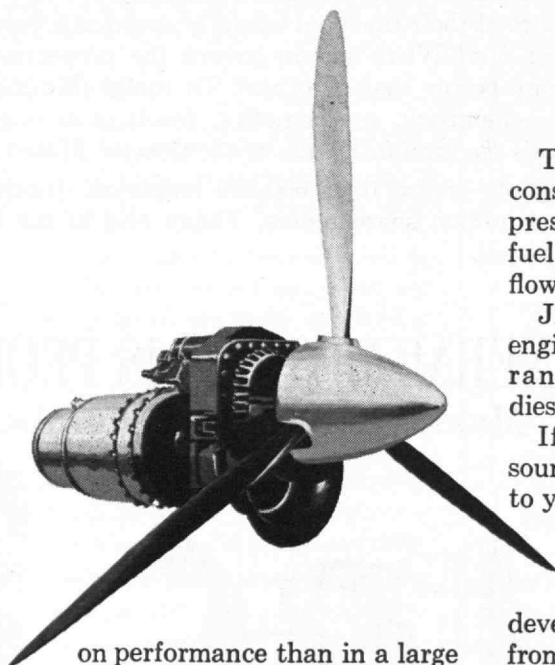
And the reason we built it, is because both civil and military sources have asked for a simple, rugged, reliable, easy-to-maintain, economically-operated, light-weight turboprop engine.



The Garrett-AiResearch TPE-331 more than fills the bill.

Obviously, building such an engine is a specialized art that demands experience, especially in miniaturization of controls, oil pumps, and starter motors.

Manufacturing tolerances are precise and have a greater effect



on performance than in a large engine. Scaling down big engine techniques is not the answer.

The TPE-331 has a specific fuel consumption of .62 pound per shaft horsepower hour. Its weight to power ratio is

.45 pound per horsepower.

Response rate from flight idle to full power is approximately 1/3 of a second.

Single-casting turbine wheels are typical of the simple, rugged components of this new engine.

A two-stage centrifugal compressor is driven by a 3-stage axial turbine. Propeller drive is through a 2-step reduction gear box offset for flexibility of aircraft design.

The fuel system of the TPE-331 consists of a fuel filter, single high-pressure pump, speed-governing fuel control, manual shutoff valve, flow divider and fuel nozzles.

JP-5 is the normal fuel, but this engine will take all kinds of fuel, ranging from AV-gas to light diesel fuel.

If this new turboprop engine sounds like something very special to you, we've made our point.

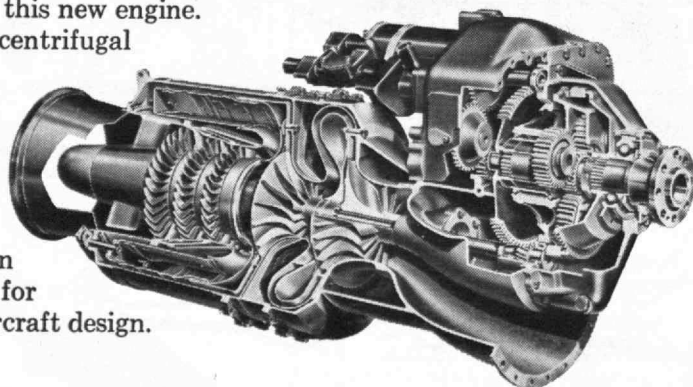
The TPE-331 is an exceptional engine.

It's the kind of a power development you'd expect to come from Garrett. For when it comes to turbine engines under 1000 horsepower...

Garrett is experience



AiResearch Manufacturing Divisions
Los Angeles • Phoenix



The School of Management Honors Two Benefactors

*It is renamed in tribute to Alfred P. Sloan,
and building is named for Grover M. Hermann*

THE M.I.T. School of Industrial Management has been renamed the "Alfred P. Sloan School of Management" and soon will have additional facilities. A four-story, \$3,000,000 structure for social science and management research is being built near the Sloan Building and will be called the Grover M. Hermann Building.

Mr. Hermann is chairman of the board of directors of the Martin Marietta Corporation. His contribution of \$1,500,000 for this building, and an additional \$500,000 gift from anonymous friends for its support and maintenance, were announced March 6 at a luncheon given by the M.I.T. Corporation to honor Mr. Hermann and Mr. Sloan.

Chairman James R. Killian, Jr., '26, of the Corporation, presided at this meeting of Institute benefactors, visiting committeemen, Faculty members, administrators, and Alumni. In addition to these gifts for the new center for the study of social science and management, Dr. Killian announced a \$1,000,000 gift from Mr. Sloan and a \$1,000,000 research facilities grant from the National Science Foundation for its support.

The management school is the first M.I.T. school to bear the name of an individual. Alfred P. Sloan, Jr., '95, is honorary chairman of the General Motors Corporation and the senior member of the M.I.T. Corporation. The school was given his name in recognition of his far-reaching contributions to industrial management and management education.

"The naming of a major school of management for Mr. Sloan is particularly fitting," President Julius A. Stratton, '23, told the press. "The Sloan School of Management is a vital part of M.I.T., adding greatly to the strength of the whole institution. Its Faculty and graduates have achieved international distinction by their contribution to management theory and practice."

Mr. Hermann, too, has long been identified with major industrial enterprises. He began his career with the founding in 1913 of the American Asphalt Paint Company of Chicago, where he resides. This became the American-Marietta Company in 1940 in recognition

of its paint and color division in Marietta, Ohio. Under Mr. Hermann's direction the company became a leading manufacturer and distributor of paints and protective coatings, and also a prominent producer of dye stuffs, printing inks, chemical compounds, aggregates, Portland cement, and chemical and metallurgical lime. It was merged with the Martin Company of Baltimore in 1961, and the Martin Marietta Corporation's Aerospace Division is now one of the nation's leading defense and space contractors.

The Building Is Under Way

Construction of the Grover M. Hermann Building, adjacent to the Sloan Building at 50 Memorial Drive, began this winter. (It occupies the area where Faculty Club visitors formerly parked.) When completed in the fall of 1965, it will give the Institute 90,000 more square feet of research and library space.

It will be built of reinforced, sandblasted concrete, and the exterior of the second floor will be virtually a solid poured-in-place concrete girder which will transmit the weight of the upper stories to first-floor columns. The foundation will be a series of concrete caissons. A raised plaza beneath which there will be auto parking places will provide access to both the Hermann and Sloan buildings. They also will be connected by an enclosed bridge between the new building's third floor and the third and fourth floors of the older one. There will be three elevators in the Hermann Building and it will be completely air conditioned.

Professor Eduardo F. Catalano of the Department of Architecture designed the Hermann Building in association with Robert Brannen and Paul Shimamoto, '61, of Boston, and it will greatly change the appearance of that end of the campus. The plaza on which it will stand is to be extended later to Main Street, and the Institute expects to build two residential towers for graduate students nearby.

In addition to the Sloan School of Management, the Sloan Building now houses the Center for International Studies and the Department of Economics and Social



Science, which will share the use of the new facilities soon to be provided.

"In a world where science and industry inevitably are linked and where social, economic, and political factors are intimately involved in technological advance," President Stratton pointed out, "the new Hermann Building will make even more effective the evolving partnership between science and engineering on the one hand and management and social science on the other. The new facility reflects the Institute's growing commitment to research and teaching in the areas of social science and management."

A Service to Industry

Mr. Hermann spoke briefly at the luncheon in the M.I.T. Faculty Club at which plans for the building were disclosed. The Sloan School of Management, he declared, "speaks directly to the future needs of industry," and its setting is appropriate for the study of decisions such as are required in business.

Mr. Sloan declared that he was "overwhelmed" by the decision to give the school his name and expressed his appreciation, after something like 60 years in industry, largely at the management level, for this "fine tribute." He then recalled the genesis of his interest in the school.

"The occasion," he said, "was the Fiftieth Anniversary of the Class of 1895, of which I am a member. We gathered together those that were available—50

Examining a model of the Grover M. Hermann Building are (from left) President Stratton, Mr. Sloan, Mr. Hermann, Dr. Killian, and Dean Johnson, all of whom spoke at the luncheon honoring Mr. Sloan and Mr. Hermann. The new building will be on a plaza, as shown on the next page.

in all. We met at the Ocean House in Swampscott, if I recollect correctly. It was just at the end of World War II. The men of the Class of 1895 were well advanced in years even at that time. Yet they had served generously in the war effort and many were still in the service.

"As part of one of our evening get-togethers, I suggested that each man who wished to do so make a few remarks about his experiences in life—his accomplishments, his disappointments, what he did to capitalize on what he had learned at M.I.T., and what he would do differently if he had to do the job over again. As a result of developing the idea, I was astonished to find that there were very few of those present who had not confined themselves to professional engineering and scientific work. They had not, except in small measure, stepped out into the area of management. Yet from my own experience, I was convinced that a scientific background, in addition to its professional qualifications, presents a very high potential for exploitation of management talent in all its ramifications. To put the idea into place, I suggested to the late Dr. Compton, who was with us on the occasion,

that I would endow a professorship in industrial management. Hence, we had the start of the idea.

"But having considered the matter further over subsequent years, I came to the conclusion that the idea should be more fully exploited in organization form, by establishing, as a self-contained unit within the M.I.T. complex, a school devoted to the promotion of industrial management.

"Not many years have passed since the establishment of that school, and yet we have now a highly developed activity, embracing undergraduate work supplemented by opportunity at the graduate level."

Mr. Sloan reviewed the school's growth and welcomed Mr. Hermann as "a full-fledged partner" in supporting it. He then delighted his audience with an anecdote about the late Charles F. Kettering and the pioneering work of General Motors on the Diesel electric locomotive.

"Kettering's comments on current events were always interesting and very much to the point," said Mr. Sloan. "The trouble was that most of them lacked validity. But what they lacked in validity, they made up in logic. His story goes something like this:

"He met me in the corridor of the General Motors building in Detroit one day and said, 'I want to get \$500,000.' That was his usual approach to such matters. He then went on to say that he proposed to build a prototype Diesel electric locomotive. I said that I was entirely in accord with the idea—which I certainly

was—that I would approve it, and that he should go ahead and get the job organized. Then I said, Ket, you can't do it with \$500,000.' He replied, 'I know that, but when you get that far along you will have to finish the damn thing.'

"Now, be that as it may, I hope we all recognize that the Alfred P. Sloan School of Management is not finished. It never will be finished. It is only on its way. Nothing is finished in a world that is moving so rapidly forward—perhaps to its own destruction, controversially speaking.

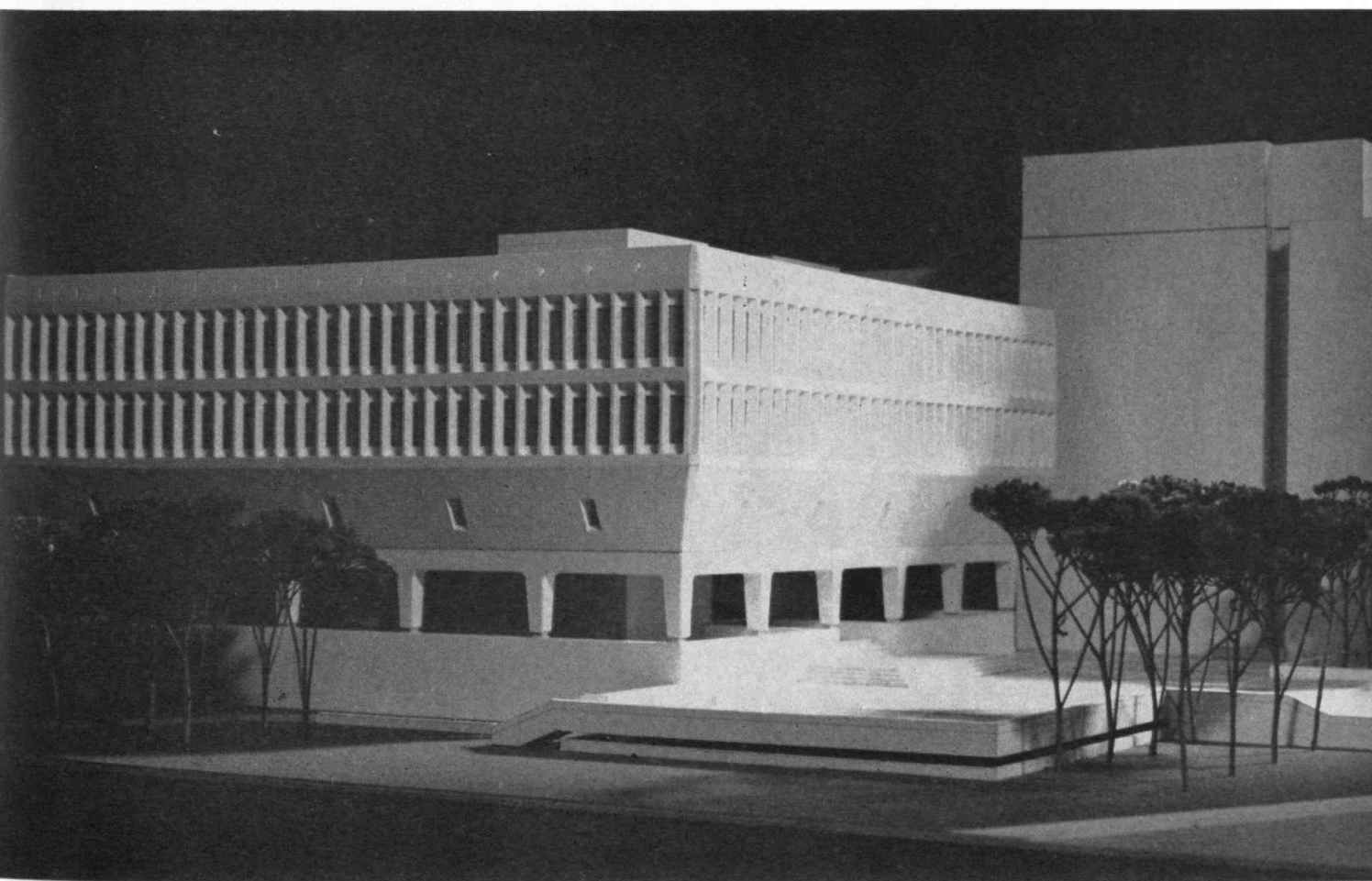
"Anyway, we now do have in the school a completely integrated operation with all the necessary disciplines. Thus, with the solid foundations ably constructed under the creative leadership of former Dean Brooks and with the superstructure under the dynamic leadership of Dean Johnson, we shall continue to advance the outstanding leadership already well established in the area of industrial management."

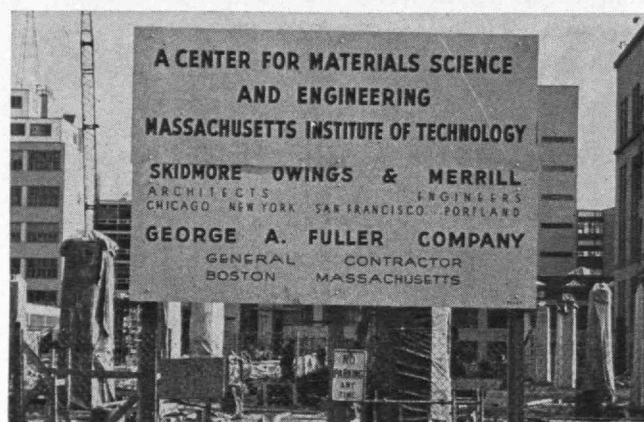
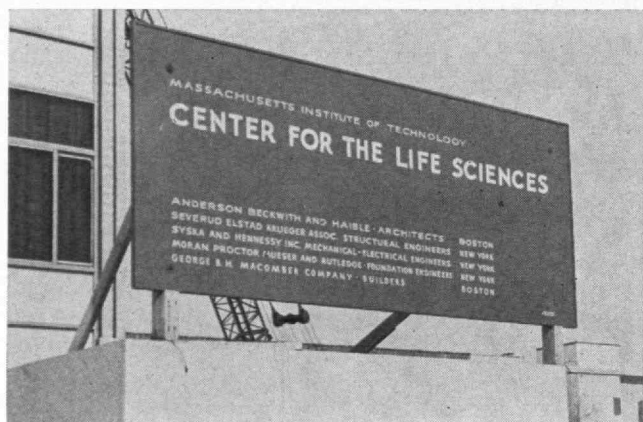
The Crest of a Wave

Dean Howard Johnson concluded the luncheon program by declaring "it will be the men who are produced here that count," and pointing out that:

"Today the student population of the school includes roughly 270 graduate students, making it the second largest graduate student group at M.I.T. It includes 125 undergraduates. At graduation, probably 10 per cent

(Concluded on page 42)

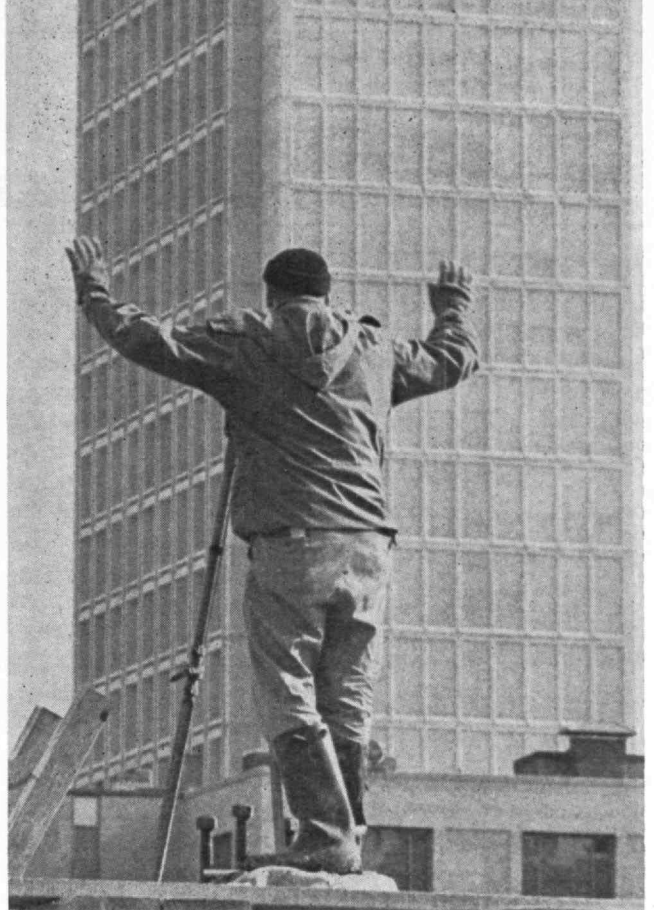




This Spring In Cambridge

ALUMNI DAY visitors to M.I.T. next June 15 will note great changes. Construction has continued throughout the winter on impressive projects. The Materials Center (at left below), the Student Center (directly below), and the Earth Sciences Building (at right) will soon change the appearance of the main campus. The fence now serving as a Spring Weekend billboard is along the walk between Kresge Auditorium and the main entrance on Massachusetts Avenue, where the Student Center will rise. An addition to the Dorrance Building will house the Life Sciences near the towering new Earth Sciences Building; and a "Materials Center" sign now bars the way to what was the main parking lot.

The Great Court facing the Charles, however, remains unchanged and Alumni will gather in tents there as in the past—to discuss architecture this year, no doubt, as well as science, engineering, education, and what old friends are doing.



Trend Of Affairs

The Alumni Day Program on June 15

DEAN EMERITUS George R. Harrison of the School of Science will be chairman of an M.I.T. Alumni Day meeting this year at which three of the most noted new members of the M.I.T. Faculty will discuss the impact of science and technology on problems of human health. The speakers will be:

Professor Hans-Lukas Teuber, Head of the Psychology Section since 1960, who for 12 years headed the Psychophysiological Laboratory of the New York University-Bellevue Medical Center.

Professor Nevin S. Scrimshaw, Head of the Department of Nutrition and Food Science since 1961, who was formerly director of the Institute of Nutrition of Central America and Panama.

Dr. Lawrence Stark, Head of the Neurology Section in the Electronic Systems Laboratory since 1960, who came to the Institute from the medical schools of Yale, Harvard, and Boston University.

Many Alumni attending class reunions the preceding weekend will come to Cambridge together for the June 15 Alumni Day program. They will join others in tours of Institute laboratories and building sites that forenoon and assemble in tents in the Great Court at noon for the traditional luncheon at which President Julius A. Stratton, '23, will speak.

The seminar that afternoon will be followed by a social hour on the West Mall, dinner in Rockwell, and a concert in the Kresge Auditorium that evening by the Boston Pops Orchestra.

The Human Use of Humans

IF YOU are not on the edge of catastrophe, Professor C. Stark Draper, '26, told the M.I.T. Alumni Council at its March 2 meeting, you are not reaching far enough ahead. Professor Draper reviewed some of his own "triumphs of hope over experience," and went on to discuss the importance of information handling in modern devices, and the necessity of never putting human beings into situations that they cannot handle. The chief skill required of the astronauts who head for the moon, he said, will be knowledge of how to communicate with a computer.

Professor Charles A. Myers also addressed the Council and stressed the importance to advanced countries of developing high-talent human resources. This requires improvement in the quality of higher education, the development of generalists as well as specialists, and careful use of scarce human resources. An advanced country's labor force, he continued, must be versatile and able to draw on a broad secondary education. These demands will require us to have more junior and community colleges and adult education programs. Distortions in the incentive structure also must be corrected, according to Professor Myers, and the proportion of public expenditures devoted to higher education must rise.

An M.I.T. Symposium in New Jersey

THE M.I.T. CLUB of Northern New Jersey and the M.I.T. Educational Council will sponsor a symposium on "Engineering, Science, and Education for Tomorrow" at the Robert Treat Hotel in Newark on Saturday, April 18, for representatives from secondary schools and for Alumni and their wives.

John T. Reid, '48, President of the Northern New Jersey club, will preside at a morning session for secondary school people at which William Speer, Associate Dean for Student Counseling, M. Bryce Leggett, '40, Associate Director of Admissions, and Jack H. Frailey, '44, Director of Student Aid, will speak.

Russell P. Westerhoff, '27, Past President of the club, will preside at the afternoon general session at which Professor Charles L. Miller, '51, Head of the Department of Civil Engineering, will describe "The New Engineering"; Professor Sanborn C. Brown, '44, Associate Dean of the Graduate School, will talk on "The Edge of Science"; and Associate Professor Hartley Rogers, Jr., of the Department of Mathematics, will discuss "Undergraduate Education in Science and Engineering."

Dean Howard W. Johnson of the Alfred P. Sloan School of Management will speak, and Joseph Wenick, '21, will preside at the dinner which will conclude the day.

Members of committees arranging the day's events include Stuart G. Stearns, '39, Carlo N. DeGennaro, '53, Alfred J. Oxenham, '45, Emerson D. Callahan, '48, Martin King, '44, Harry Sherman, '47, George F. DesMarais, '20, John W. Cannon, '24, Carole A. Clarke, '21, and Sumner Hayward, '21.

The Friedman Lectures

PROFESSOR Philip Morrison of Cornell University began a series of lectures on theoretical physics for M.I.T. students this term by pointing out "the ubiquity of the helix." It is found both in the motions of astronomical bodies and the structure of biological molecules, and Professor Morrison believes that if life is found on Mars it will contain some kind of helical polymers.

"I assert," he has written, "that near some star rather like our sun there now exists a civilization with scientific interests and technical possibilities much greater than those now available to us. Moreover, to the beings of such a society our sun must appear as a likely site for a similar civilization. I believe that they look forward patiently to signals from our solar system which would make known to them a new society ready to enter the community of intelligence."

Professor Morrison's M.I.T. lecture series is in memory of Francis L. Friedman, who received his doctorate at the Institute in 1949 and was a member of its Faculty from 1950 to 1962. His taste and devotion, Professor Morrison said, "have a worthy monument in the increasingly successful Physical Science Study Committee high school physics course."

The lectures are being given at 4:00 P.M. in the Kresge Little Theater and will continue into May. "The Physics of Identity" will be Professor Morrison's subject on April 28, April 29, and May 5; "First and Last Things: The Elements of Cosmology," on May 12; and "In the Subjunctive Mood: If Neutrons Were Lighter . . ." on May 19.

Intellectual Honesty and the Contemporary Scientist

BY NORBERT WIENER
Institute Professor

THIS ARTICLE was drawn from a tape recording, provided by Rabbi Herman Pollack, of the author's informal remarks to students at a B'nai B'rith Hillel Foundation meeting last year at M.I.T.

THERE'S a lot of talk of this era being one of a knowledge explosion. The bulk of science has grown enormously and people have assumed that the rate of growth of knowledge is far greater than in any other age. One of the things that has led to this enormous apparent growth of the bulk of science is the fragmentation of scientific research, the great amount of detailed use made of ideas by large bodies of people for a large number of specific purposes. Last week I had a visit from two different journalists, one representing a national magazine and the other a local Massachusetts paper, and both of them seriously questioned whether the individualist could occupy the place in science that he used to. The idea was that the science of the future, not only in some fields, but in all, will be a matter of mass work, and that a number of people doing a small amount of work will add up to an intellectual corporation doing great work. The age of individualism in science is sometimes said to be over. I question this very seriously and I want to explain why.

To make this explanation clear, I will take the case of a project of a medical nature that I'm working on now. Some years ago I had the idea, and other people have had it, too, that prosthesis, the making of artificial limbs, could be greatly improved and put on a new basis by working with the messages which are still being received by the muscles and nerves of the amputated limb, by picking them up in such a way as to actuate an artificial limb. The Russians have been working on this idea and have produced some successful artificial hands, although I think, and I believe they think, that they are far from the ideal level of perfection which we want. At any rate, we have a group of surgeons, neurophysiologists, engineers, neurologists, and myself as a mathematician, working together on it here.

Now this has brought me against practical problems of organization of scientific work and what I'm saying is relevant to a great many other problems coming up at the present time. You see, it is a problem with many branches. We need a great many different skills. What isn't so clear to everyone, but is quite clear to us, is that these skills must be combined to a very considerable extent in the same person.

Suppose we take the physiologist. We cannot work, we cannot design, until we know what signals we can work with, and that's a physiologist's problem. We cannot work, we cannot design, until we know what good functioning is. That's partly a physiologist's problem, and partly a psychologist's problem. We can't do our final design till we know what interference the body will tolerate. Can we insert apparatus under the skin and leave it there? That's very important because the signals as they come through the skin are mixed up so much that we cannot get a fair representation of the number of different commands that are coming.

Again, what will be the effect on the psychology of the patient who uses an apparatus of this sort? One of the big problems with all amputees is the problem of the phantom limb: the sensation that the amputee has that the limb is still there, which can be very annoying to him. Sometimes, quite often, there's actual pain from the limb that isn't there. Even when there isn't pain, there's a disturbing sensation. Now, since we are using the nervous activity which corresponds more or less to the phantom limb, there's a very nice psychological question here. Will the diversion of this activity to a use that is helpful to the patient change his psychology with regard to the phantom limb? I won't say we know that it will, but we expect that it will. Then we have other questions: How rapidly will the nerves and muscles lose their ability to respond? We need to work on that. Will implanted electrodes form scar tissue that will prevent their further action? That we've got to work on, too.

In other words, the engineer here isn't in a position to work until a lot of the other work has been done. On the other hand, if the engineer isn't active at the very beginning in directing the attention of the physiologists and surgeons to things that are relevant to the engineering work, if he cannot state to the other people just what his demands are in connection with their work, the work won't go on well. We have a group of people here in which every person on the job needs to know what the other people are doing, and not merely know, but actively participate.

Now contrast that with the view of need for knowledge in a great deal of engineering work at present. Limitation of the need for knowledge may be demanded in connection with war secrecy, in connection with industrial secrecy to see that a competitor doesn't get any wind of what is being done, and for purely administra-

tive purposes. It's easier to run a group of people if you can divide up the job; it protects the administrator because there is nobody who can adequately criticize what he is doing. Now, you see, we couldn't possibly work on that plan. It is essential for this sort of work, and frankly, I think it is essential for many other sorts of work, to have a group in which everybody has an idea of what everybody is doing.

This has other implications. One is that the group should be kept small for a considerable time. Frankly, for work of the quality we want, there just are not enough people to make it a big project at the present stage. If we were given 10 million dollars, let us say, for this project right now, and were asked to build up an organization to use it at a certain fixed rate, the project would be wrecked. Why? It would be wrecked because the people who need to spend their time on the scientific aspects would be turned into administrators of a group, in which there would be many people who were not up to their level. Doling out the work would become a chief consideration. It is quite possible in a case like this to ruin a project by building it up too early.

So, as this suggests, I am rather skeptical about crash projects, and a great deal of the apparent science explosion comes from the use of many people who are labeled and popularly understood as scientists in this mass work that comes in crash projects.



There's another illusion that the more papers are being published, the more science is being done. However, a large number of *bad* papers means less science is being done. I'll bring up the old figure of speech of the monkeys and the typewriters. It is attributed to Eddington, but it's much older than Eddington. It occurs in Swift's *Voyage to Laputa* although there are no typewriters there and no mention was made of monkeys. In the *Voyage to Laputa* the academy of projectors have frames where they can put up all the letters of the alphabet in all possible combinations, take them all down, and hope ultimately to get all possible wisdom.

Well, monkeys or typewriters working in this way, given enough millennia or millions of years to work, would certainly get every possible combination of a certain number of letters. Among these would certainly be the combinations which are the works of Shakespeare. But how much would the monkeys and the typewriters have contributed? Not one thing! For this reason: In getting the works of Shakespeare, they would also have gotten all of the conceivable trash and balderdash in the world. In order to get Shakespeare, it is not enough to have Shakespeare together with this other, but to have Shakespeare separated from the other. It would be at least as difficult a task as writing the works of Shakespeare to separate those works from all other possible works. Shakespeare's works would no more exist in that mass than a sculpture does in a block of marble. You may say that all the sculptor does is to remove the unnecessary marble. So, in separating the non-Shakespeare from the Shakespeare, you would be doing exactly what the sculptor does in separating the superfluous marble from the statue. We call that making a statue, and I think we can call this writing the works of Shakespeare.

Extreme cases like that don't occur. But suppose you have a large mass of low-grade scientific work: If it is your duty to look through it all in order to find the high-grade scientific work, the mass of it makes finding the high-grade scientific work much more difficult. You have no alternative but to neglect a large part of the work and work on such criteria as knowing who's done it and going through the titles and finding one which has a trace of imagination in it. The existence of the other work doesn't help you find the really fundamental scientific work one bit. It makes this a harder task. So I say that one of the needs of science at the present is to keep the monkeys away from the typewriters.



You see, then, how easy it is to mistake mass and expensiveness for effectiveness and originality of work, and how this work will not automatically give birth to originality. Now, there are certain stages where a great mass of people can be used. There are areas of work where they can, but a mass attack is not a universal panacea. It is not a prescription which will make science. Furthermore, if science depends wholly on work that is done in this very expansive way, it will die from lack of new material. The need for originality, the need for individuality, is not less now than ever, but greater now than ever. There is more material to digest and in order to be really original you must digest more of it now than at any time. You cannot dispense with this.

A great deal of this explosion of knowledge just isn't what it seems to be. Originality is needed in science at least as much as at any previous age, and with originality, integrity. Integrity demands that when a thing is proved wrong, you admit it is proved wrong. But that is not all. "Proved wrong" is very different from "looking peculiar." Quantum theory looked extremely peculiar when it was started. It didn't fit any of the preconceived ideas. In mathematics there were many things which for years were called pathological, nondifferentiable continuous functions for one thing, and when work began to trespass on these fields, many people rejected it. It was so queer it couldn't be right. Yet much of this work was not only what could be used but what was needed for physics and engineering. In other words, intellectual integrity does not merely require avoiding bad work; it also consists in not having crude ideas of what bad work is, and not rejecting work merely because it's a little bit distasteful to begin with. Mere conservatism does not guarantee integrity.

A man who is to live up to the highest ideas of scientific integrity cannot be led aside by the fact that a piece of work fits the latest style, that everybody's doing it. He's got to be willing to follow it out, even if it doesn't fit the latest style, if it fits his idea of how the field ought to develop. That means, in many cases, that he must consciously forego immediate success for the depth of his own work. It's a gamble he's got to take.

In this connection I do not consider that a man has established himself by having made no mistakes. If a man is looking very hard for ideas, he's bound to follow leads, and a certain percentage of the leads, a rather high percentage, won't lead anywhere. To have this percentage low, if possible, a man must have the experience

(Continued on page 44)

Computing for the America's Cup

A set of programs is being developed which will make it possible to simulate a yacht race without even getting a binary digit wet

BY SAMUEL JAY KEYSER

ALTHOUGH an M.I.T. computer has not yet beaten Bobby Fischer at chess, one may contribute to a victory in America's Cup sailing races.

The work of Assistant Professor Justin E. Kerwin, '53, and Halsey C. Herreshoff, '60, in the Department of Naval Architecture and Marine Engineering, in fact, may affect the outcome this year. For they are testing model hulls of sailing yachts in M.I.T.'s Towing Tank, using a computer to help decide which of two hulls has the better chance of winning, and one of the models that they have been asked to test is the *Nefertiti*.

The use of a computer is relatively novel in yacht design, but the use of towing tanks is not. One was used as early as 1901 in designing the British entry in the America's Cup race, *Shamrock II*. Despite the tank, *Shamrock II* was defeated by *Columbia*, a yacht designed by Mr. Herreshoff's grandfather, the famous "Wizard of Bristol."

Ironically, at the conclusion of that race, the British designer, G. L. Watson, seeing his yacht lose, is reputed to have said, "I wish Herreshoff had a towing tank."

Watson finally has his wish, for Herreshoff's grandson, and Professor Kerwin are using a towing tank and a unique method of studying hulls. With the IBM 7094 and 709 computers at M.I.T., they are performing calculations in a matter of seconds which the designer of *Shamrock II* might still be working on today if he had undertaken them in 1901.

Three Keys to Victory

The performance of a yacht is a function of

1) the hydrodynamic forces acting on the hull;



Predictions have been made for the Nefertiti's designer.

2) the aerodynamic forces acting on the sails; and

3) the skipper's skill in getting the most out of his craft in the face of whatever wind and water forces nature and the racing officials decide to confront him with.

Kerwin and Herreshoff believe the third factor is as much a matter of art as of science, and they have decided to concentrate on the first two. Their newly developed equipment and analyses are revealing useful, interesting information about hydrodynamic forces, and sail-force experiments and further theoretical developments are contemplated.

Before Kerwin and Herreshoff go to the computer, they gather data from a model in the towing tank. In the hydrodynamic aspect of their experiments, they visualize a full-size hull as being driven along the water by a giant, invisible hand. The

problem is to determine how hard and in what direction the giant hand has to push. To solve this problem, they simulate the performance of a full-size yacht hull using models and the tank. Their current experiments are run in absolutely calm water, but the tank's wave maker and their special gear will ultimately make rough water experiments possible.

Balanced Arms

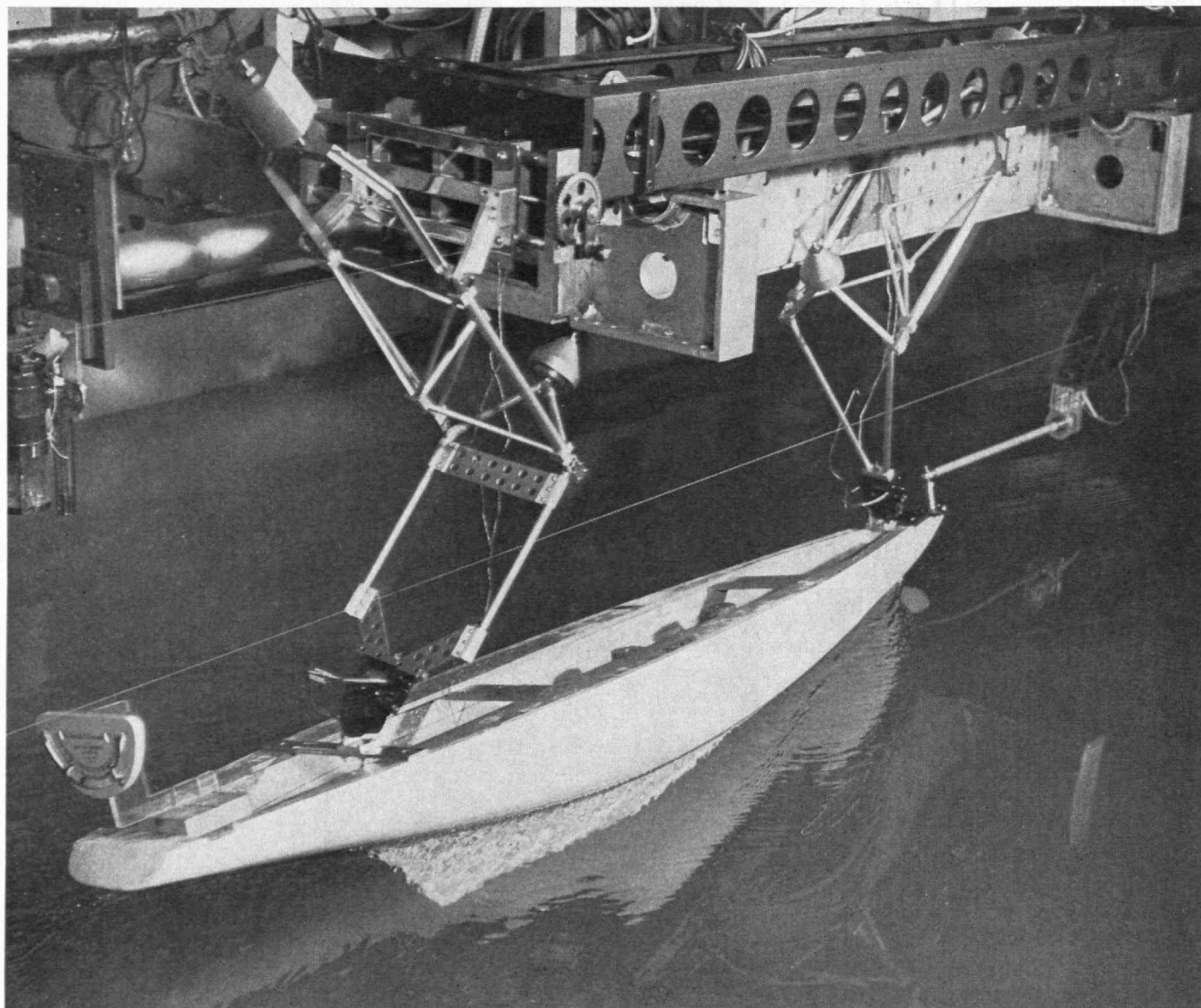
To measure how hard the hand has to push, Herreshoff designed a special yacht-testing dynamometer. This device, built by the M.I.T. Instrumentation and Mechanical Engineering machine shops, consists of two perfectly balanced model support arms. These arms are made of aluminum tubing and are held rigidly together by epoxy adhesives. One end of the arm is attached to the

model hull, the other to an overhead carriage. This carriage travels the length of the towing tank, pulling the hull through the water as it goes.

The arms are equipped with an ingenious set of electromechanical measuring devices. These devices measure the forces acting on the hull and cause the resulting values to be displayed on electronic counters at the operating station. There are four such counters, one to register the side force of the water at the bow, another at the stern, one to measure the hull's drag, and finally one to measure the hull's speed.

According to Kerwin and Herreshoff, there are two crucial factors which will determine whether the data gathered by the counters add up to a winning design. They have built these factors into their experiments.

(Concluded on page 38)



A model hull in the M.I.T. Towing Tank for runs such as Kerwin and Herreshoff have been making for their programs.

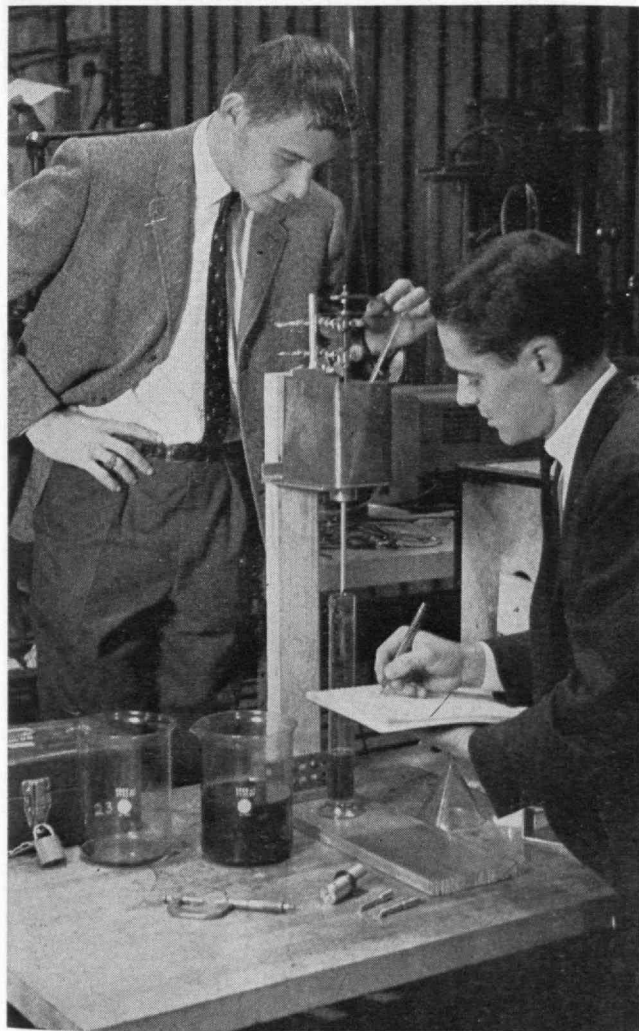
From Outboards to Space Trains

Aeronautical engineering students explore ideas for propelling nearly everything new imaginable

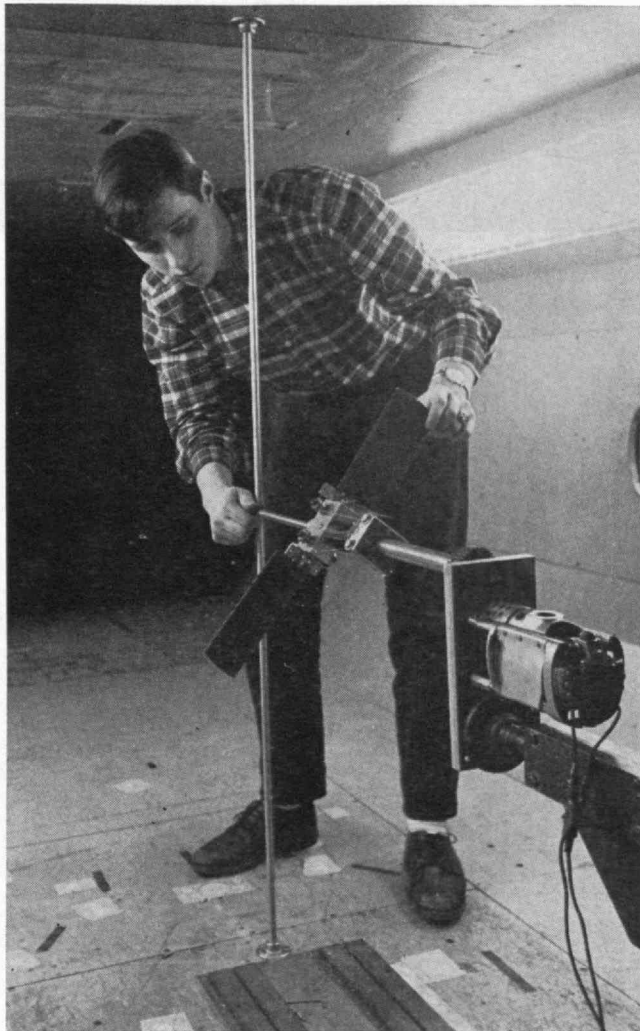
ANNUALLY NOW, Photographer George Woodruff tours the Experimental Projects Laboratory in the Department of Aeronautics and Astronautics at M.I.T. In this laboratory, started in 1961, students decide what to measure, how to do it, interpret results, and present their findings to student and Faculty critics. Many construct novel kinds of experimental apparatus, with materials scrounged from sources too numerous to mention, and measure phenomena about which textbooks still say relatively little.

As usual, the photographer found some of this year's students performing experiments pertinent to propulsion by both conventional and exotic means. Some were concerned with parts for small engines, and others with the potentialities of notions that still seem somewhat far out even on Cape Kennedy.

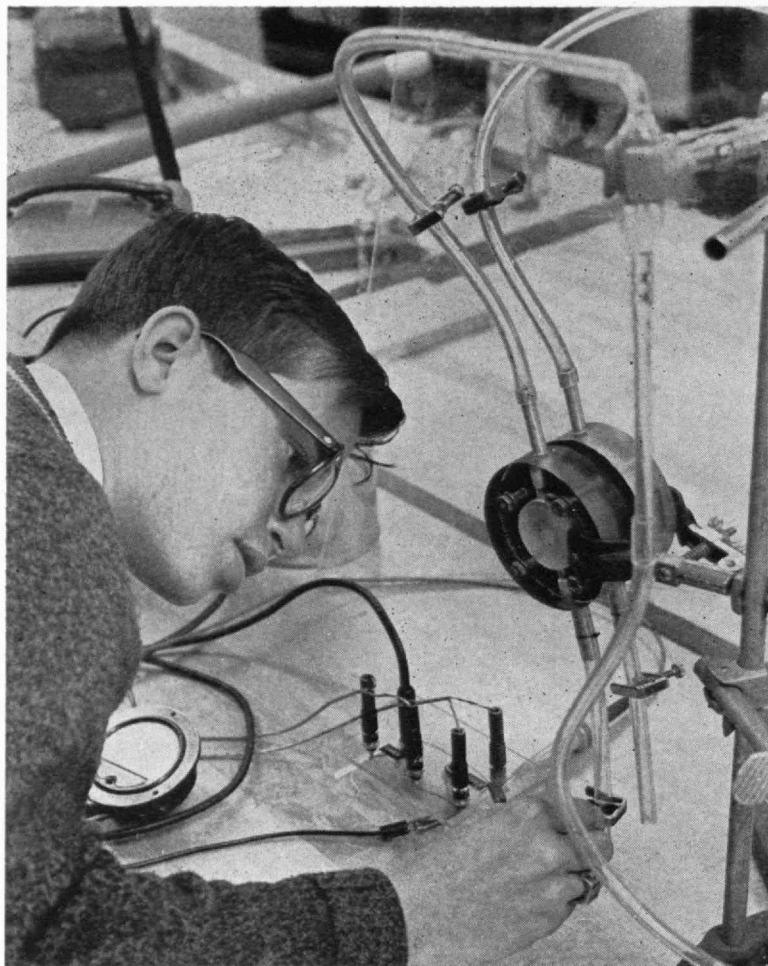
Some of the pioneers in this still relatively new kind of college work are pictured below and on the next two pages of *The Review*. All of the students shown are members of the Class of '64.



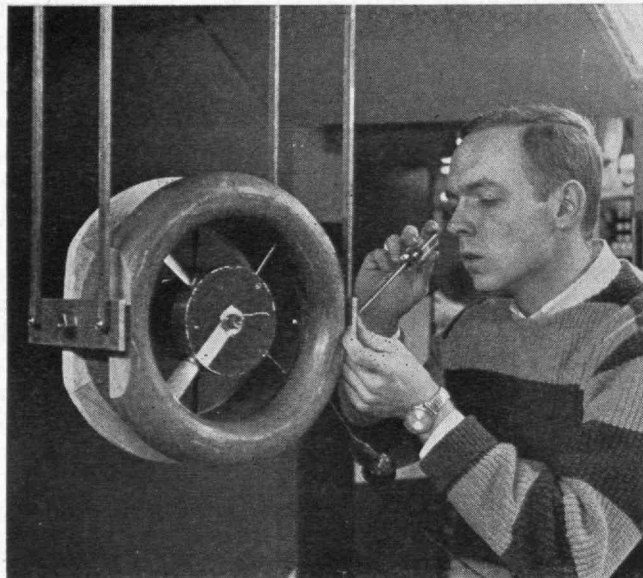
A RESPONSIVE CARBURETOR, to mix oil and gas correctly for a two-cycle outboard engine was studied by Richard S. Fisher and Wayne A. Sovers, Jr. They devised a bimetallic valve to admit the right amount of oil despite temperature-produced changes in its viscosity.



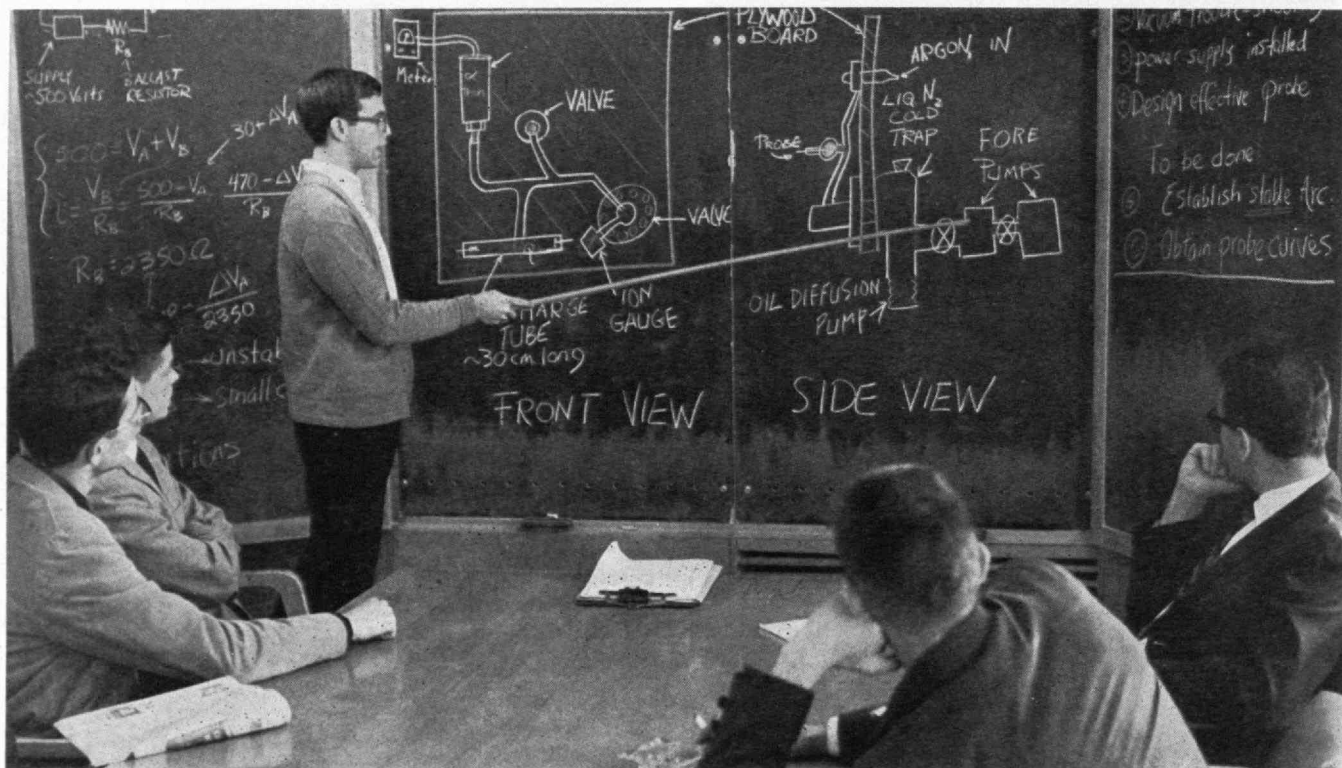
A BRAKE FOR SPACECRAFT was tested in a wind tunnel by Robert J. Cummings. His whirling blades, attached to an axle by wires, fly outward when spun. The extended wires then apply a retarding force, like that from a parachute on an object falling in air.



A FUEL CELL (at left) to produce directly electricity from hydrogen and oxygen (with water as a by-product) was studied by David N. Saul. His cell contained two chambers, separated by a plastic membrane through which ions could migrate. When hydrogen is fed to one chamber and oxygen to the other, a current is produced which he measured.

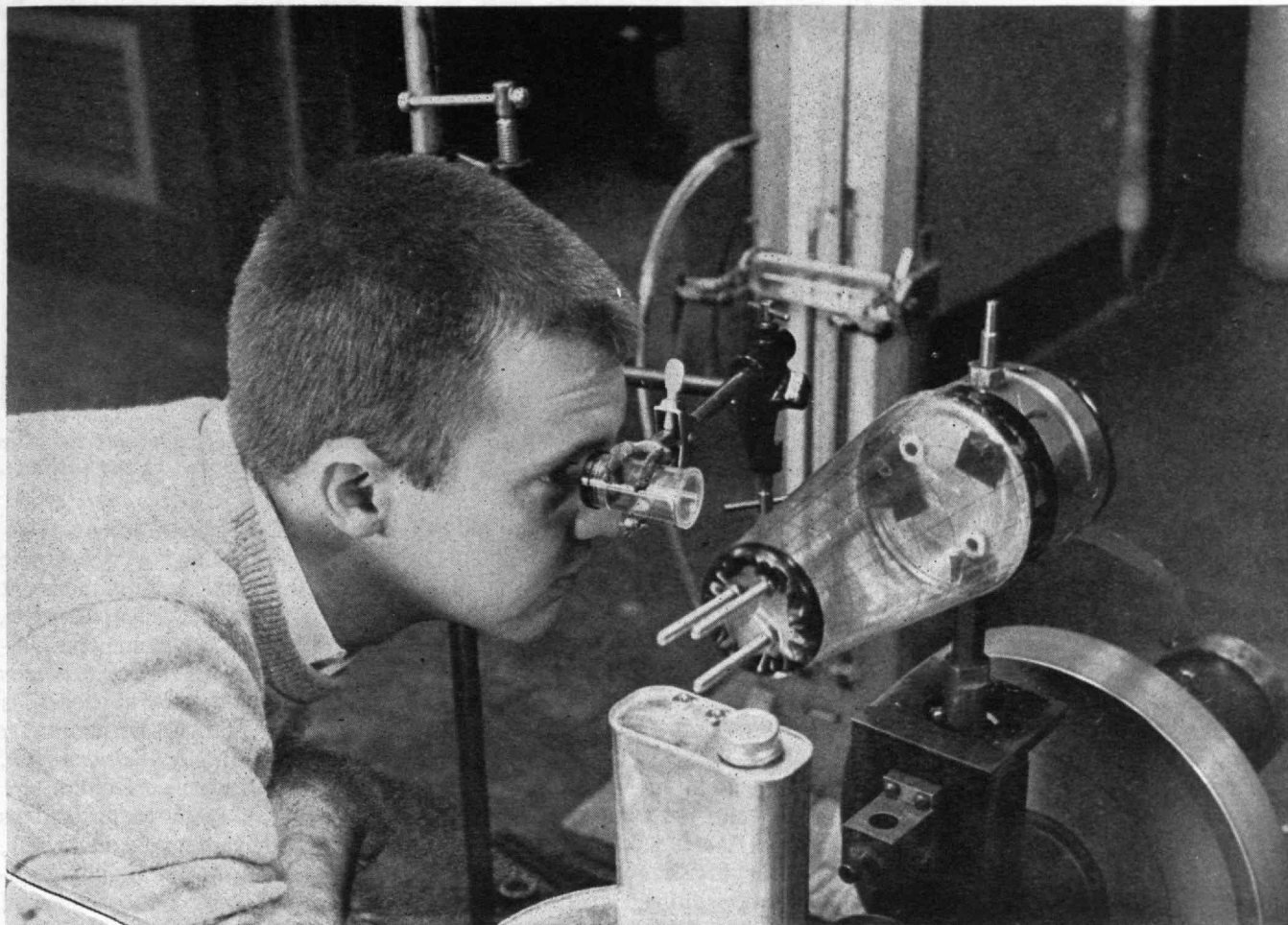


DUCTED FANS intrigued William S. Hart, and he studied one in a swinging cradle in a wind tunnel. You may some day ride in a VTOL (vertical take-off and landing vehicle) that is propelled by such a fan.

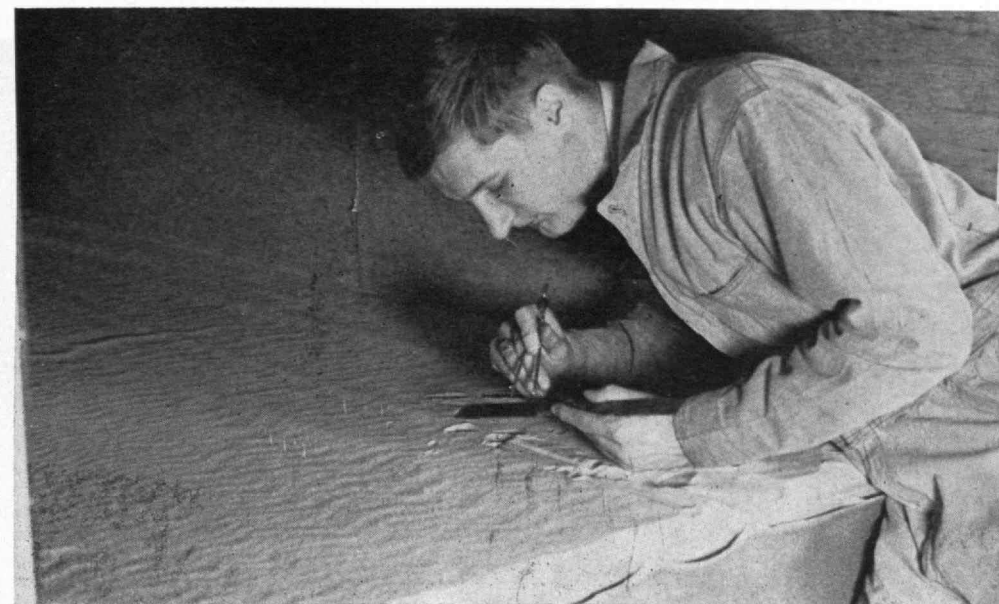
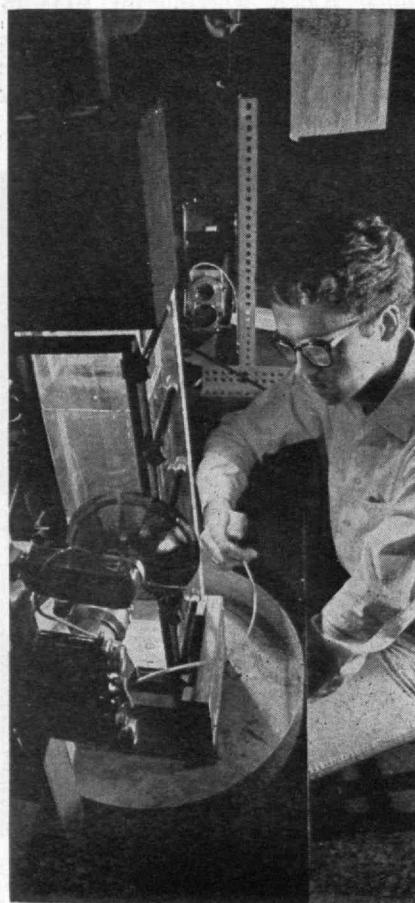


AN ARC DISCHARGE in a plasma was described in detail by Michael Todd, in a presentation of electron energy distribution measurements that he and James I. Lerner made

with apparatus that they built for the study of space-power systems. All students make such presentations of findings to fellow students, professors, and guests.



RENDEZVOUSING SPACE VEHICLES may be coupled like railroad cars some day, possibly by inflated conical structures such as P. S. Kilpatrick, 2d, examined. His little connector was made of mylar, stiffened by air pressure, and the grid on its surface enabled him to observe its structural properties when one end of it was shaken harder than the other end.



THE DESCENT OF A BUBBLE in a tank of ordinary water (at left) was studied by Indulis Saulietis. Changes in its shape enabled him to draw conclusions about its breakup into spray.

SHIFTING DUNES in a sandbox in a wind tunnel were marked and measured by Martin H. Stieglitz, in one of many laboratory studies of phenomena at interfaces of different materials.

The Theater at M.I.T.

Dramashop is thriving, some of its Alumni have become teachers of English literature, and many are playing in community theaters

M.I.T.'s DRAMASHOP offers students a unique opportunity says Associate Professor Joseph D. Everingham: "A boy can walk in, ask if there is an opening and, with no apprenticeship, can direct a one-act play, arrange the lighting, or act a lead part. He doesn't have to sweep the stage for a couple of years before he gets a break."

Interest in the theater at M.I.T. waned during World War II, but was revived in 1956 when the Little Theater at Kresge opened and Professor Everingham, a Harvard man, took over direction of the undergraduate dramatic society.

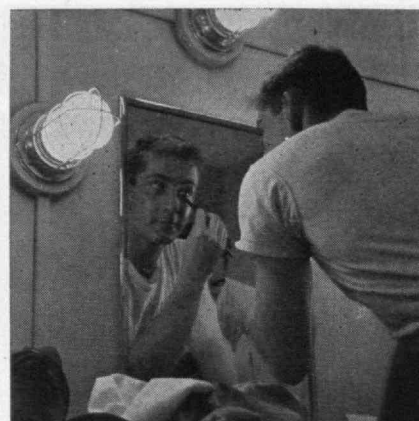
It now produces two evenings of one-act plays and one major production each term. Modern material is usually chosen for the one-act plays and a classical drama for the major undertaking. Dramashop also sponsors the Celebrity Series that

now brings stars to the campus for one-night stands.

Nearly 150 undergraduates and half a dozen graduates are currently active, but girls from nearby colleges still must be invited in frequently to complete a cast. Two Dramashop alumnae have gone on to Broadway: Barbara Mostel appeared in *My Mother, My Father and Me*, and Faye Dunaway has played in the Lincoln Center Repertory Theater.

Costumes are seldom a problem; John E. Leide, '65, has designed them for three shows. In addition to a large wardrobe, Professor Everingham has a big stack of properties, including those used to film *The Cardinal*.

Several Dramashop Alumni have done graduate work in English and some are now teaching. Herbert Propper, '56, is teaching at Sarah



Herb Propper, '56, appeared in "The King and the Duke" at the Institute.

Lawrence College; Anthony C. Turrisi, '56, is working for a doctorate in English drama and literature at Boston University; Stewart R. Mott, '59, transferred to Columbia University to study English and is now teaching; Richard Hornby, '60, is working for a Ph.D. in drama at Tulane; and Irving L. Weinman, '60, is at Trinity College in Dublin.

Many have stuck to professions for which they prepared at M.I.T., but are active in community theaters. Nelo Sekler, '56, a chemical engineer, is play-acting in Venezuela, and Jean-Pierre Frankenhuis, '62, is working for IBM in Brazil but still interested in literature. Joseph A. Lestyk, '61, in California, also finds time for the theater and his business career.



Richard Hornby, '60, in "Volpone."



Jean-Pierre Frankenhuis, '62, in Pirandello's "Henry IV" in 1959.

Lasers in the Operating Room

Biologists have been given a new tool that may also be adaptable to the surgeon's use

BY DR. RONALD A. MALT

M. I.T. biologists are so accustomed to having physicians among them that I was assimilated almost upon appearance two years ago. Despite this warm welcome, I was quite unprepared for Professor Richard C. Lord's hospitality soon afterwards in making the Spectroscopy Laboratory available for biological experiments and for Dr. Karl Hartman's enthusiastic collaboration there.

"Well," I thought, "all this will stop with the Provost."

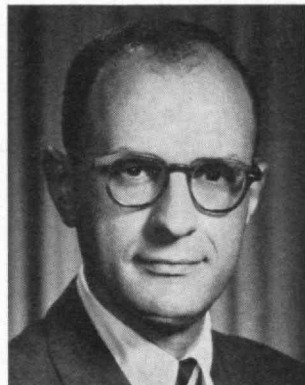
It seemed natural to ask for an appointment to discuss masers with Provost Charles H. Townes, who discovered them, soon after I had the idea that they could be an ideal tool for selectively damaging structures within single cells and also for destroying diseased tissue in patients. But I was wary. Anyone who reads the correspondence sections of responsible scientific journals knows that an eminent physicist who takes a high administrative post becomes unavailable except to the select few. He doesn't investigate. He doesn't teach. He sits and deals and reads Machiavelli. In actuality, I found that although Dr. Townes had already thought of many of the biological applications of the maser that I had in mind, he was pleased to help anyone interested in developing them and, in addition, was able to explain the physical principles of maser action in a comprehensible way. I am glad to be able to express my appreciation.

An optical maser, or laser, generates coherent light that can be focused to a spot about one-third of a micron in size. Essentially all of the energy emitted can be concentrated in this small area. By focusing through a telescope it has been possible to reach as far as the moon with the light from a maser, but microsurgical applications are possible, too.

Illumination densities of 10^9 watts per square centimeter can be produced in spots one-twentieth of the size of a red blood cell from sources of only 10 watts. Yet, up to 10^8 watts *before* focusing may actually be generated by lasers that cause the energy to be delivered in periods as short as 10^{-8} seconds. Moreover, these intense electromagnetic waves, which generate field strengths of several million volts per centimeter, are able to affect minute target areas without disturbing thermal equilibrium in surrounding tissues. These and other properties of lasers provide the biologist with a more convenient tool than an ultra-violet microbeam, an x-ray machine, or a neutron emitter for performing intracellular ablation experiments.

The laser can also serve him as a source of nearly

DR. RONALD A. MALT is a surgeon at the Massachusetts General Hospital and Harvard Medical School, an Established Investigator of the American Heart Association, and a research associate in the Department of Biology at M.I.T. The possibilities to which he calls attention in this article were discussed in more detail by Provost Charles H. Townes and



Dr. Malt in a report on "Optical Masers in Biology and Medicine" in the December 26, 1963, issue of The New England Journal of Medicine.

monochromatic light with which to study the fine structure of spectra, give him wavelengths in the far infrared with which to examine new aspects of structure, and provide him with exceptionally brilliant light capable of producing high-intensity Raman scattering. The short flashes from a pulsed laser permit ultra-high-speed photography, and the stable high frequency of a continuous-wave optical maser serves as an excellent carrier for the long-range transmission of physiological information.

The surgeon at the operating table has a different set of needs. Diseased tissue that he wants to remove is often contiguous with a structure that should remain inviolate. A cutting tool of infinite thinness for practical purposes would be of help, for example, in the removal of epileptogenic scars of the brain, certain cancers of the face, tumors of the windpipe, and (rarely) lesions near the conduction pathways of the heart. There would be an added dividend possible if a preliminary and unconfirmed observation that laser radiation has a selective lethal effect for certain animal cancers can be confirmed and extended to human beings, for it might then be possible to develop an optical knife that would not only define the border of excision sharply but would also kill remaining malignant cells.

Destructive effects of optical masers are not limited to exposed surfaces. Since the energy they emit can be channeled through fiber optics, organs that can be seen only indirectly are also fair game. Although it is difficult to see how cauterization of bladder cancers

through the cystoscope with a laser would have many advantages over the usual electric current, and one would have to stretch one's imagination to think of an example of a bronchial lesion treatable through the bronchoscope, or a stomach lesion through the gastroscope, use of a laser with the ventriculoscope has possibilities.

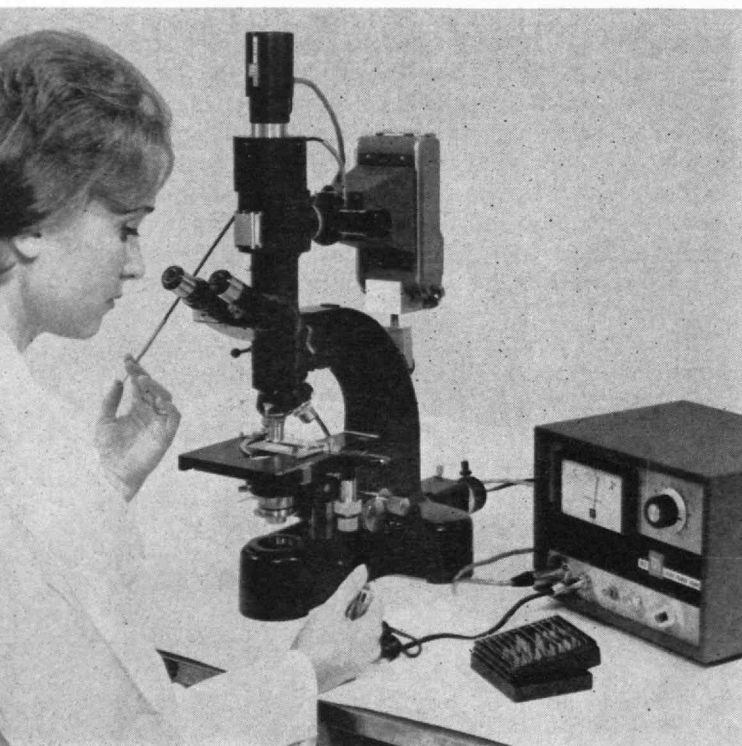
The ventriculoscope is a special telescope that is introduced into the ventricles, the curved cavities within the brain, through a small hole in the skull. Although occasionally used in diagnostic procedures a couple of decades ago, it is now almost an historical relic. However, the ability to direct a coagulating beam from a laser through a fiber bundle associated with the viewing system suggests the possibility of creating focal burns within the brain to abolish disorders of purposeless movement such as Parkinson's disease, to destroy tumors of the membrane lining the ventricles, and to damage portions of the pituitary gland in certain hormonal disorders without harming adjacent optic pathways. Experiments to bring these possibilities to practicality are under way in several research centers.

The black retina at the back of the eye fronted by transparent media is an ideal target for focused light; hence, the first clinical trials of lasers have been in ophthalmology. Experiments in fulguration of retinal tumors in a solitary eye after removal of the other have been equivocal thus far, but advantages in the photocoagulation treatment of torn retinas are already clear. Lasers promise to supplant the arc-light sources now widely used both for sealing the edges of small

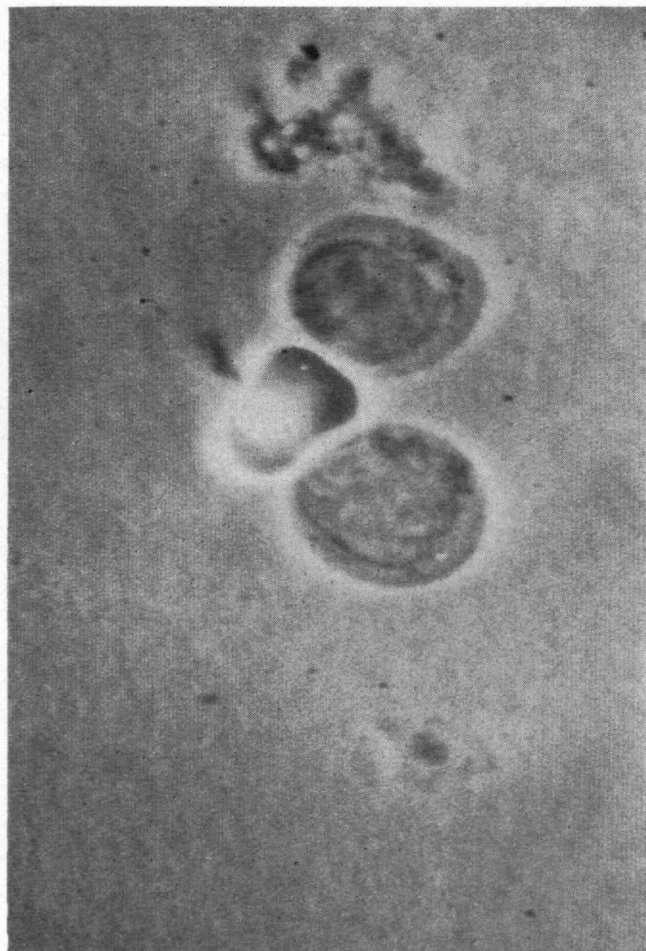
tears with scar tissue and for "spot-welding" frankly detached retinas to their supporting scleras after the two surfaces are first mechanically approximated, because lasers are less expensive, easier to manipulate, capable of sharper focus, and able to deliver energy in so short a time that the effect of unintentional movements of the patient's eye is annulled.

The possibility of welding blood vessels and portions of the respiratory and gastrointestinal tracts with a laser beam is also attractive. Methacrylate plastics that polymerize on contact with water have been used experimentally to glue together many of the body's hollow tubes; the difficulty is in keeping the parts together until the plastic sets. In most instances conventional suturing (or even unconventional stapling) is required first, so the use of the new material confers only minor advantages in protecting against leakage. But if the laser were able to maintain union without devitalization by welding small bits of tissue together until polymerization could occur, the art of surgery might be considerably refined. By comparison, the problem of adapting the instrument to coagulate blood vessels without damaging other tissues when it makes the initial skin incision seems simple indeed.

Articles of this type traditionally end on a cautionary note by emphasizing that the ultimate role of the device discussed is cloudy, and this report is no exception. What is apparent is that Dr. Townes and his associates have provided instruments of enormous power, stability, and specificity uniquely suited to certain tasks in research and in the treatment of human beings.



The young lady above is using a biolaser, and the photo at the right shows a focused spot from a laser about two micra in diameter on a red blood cell. The two cells alongside are white blood cells. (This picture was taken from a TV monitor by Georges Bru, C.S.F., Paris; the other was provided by Micron Enterprises, Boston.)

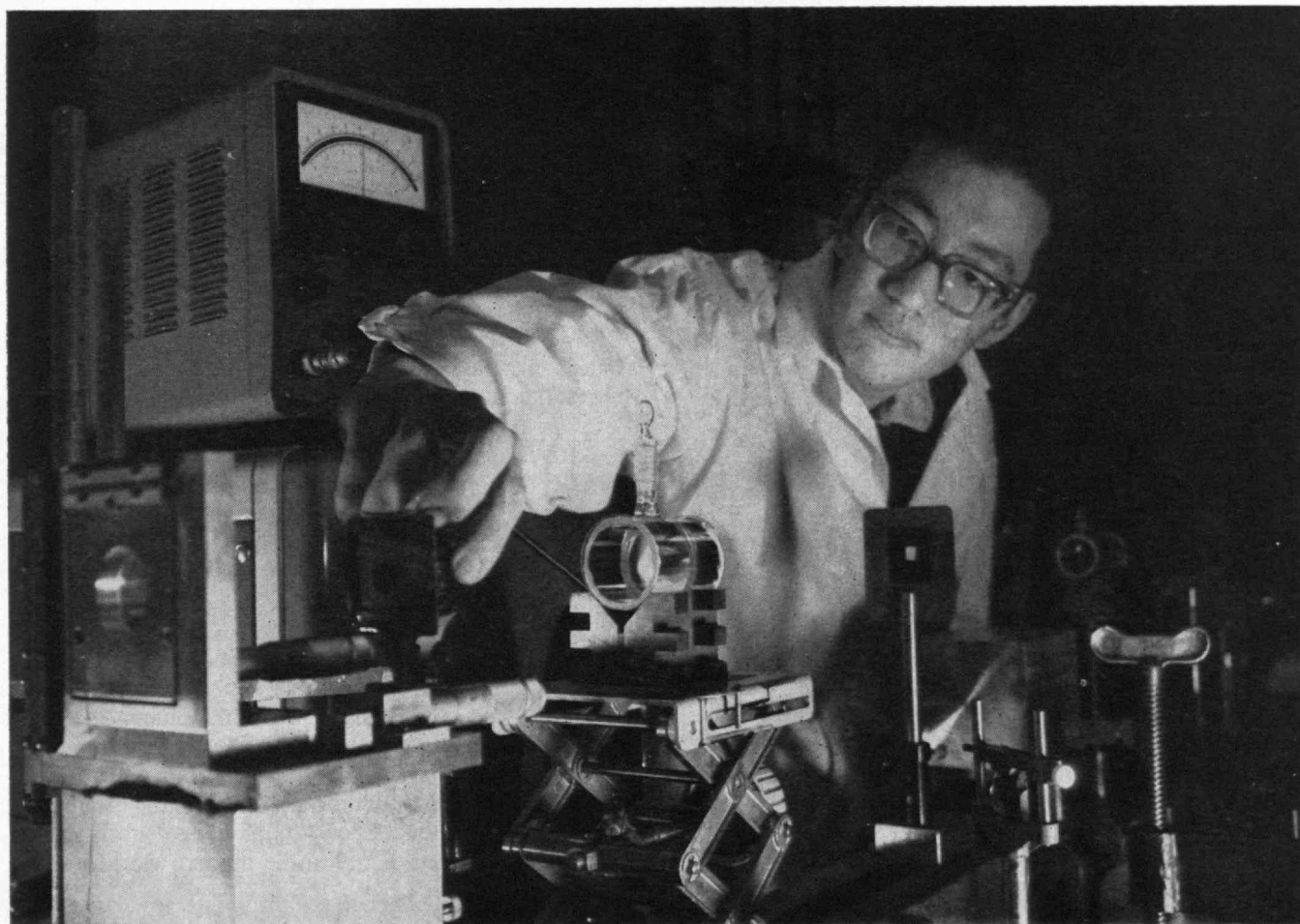
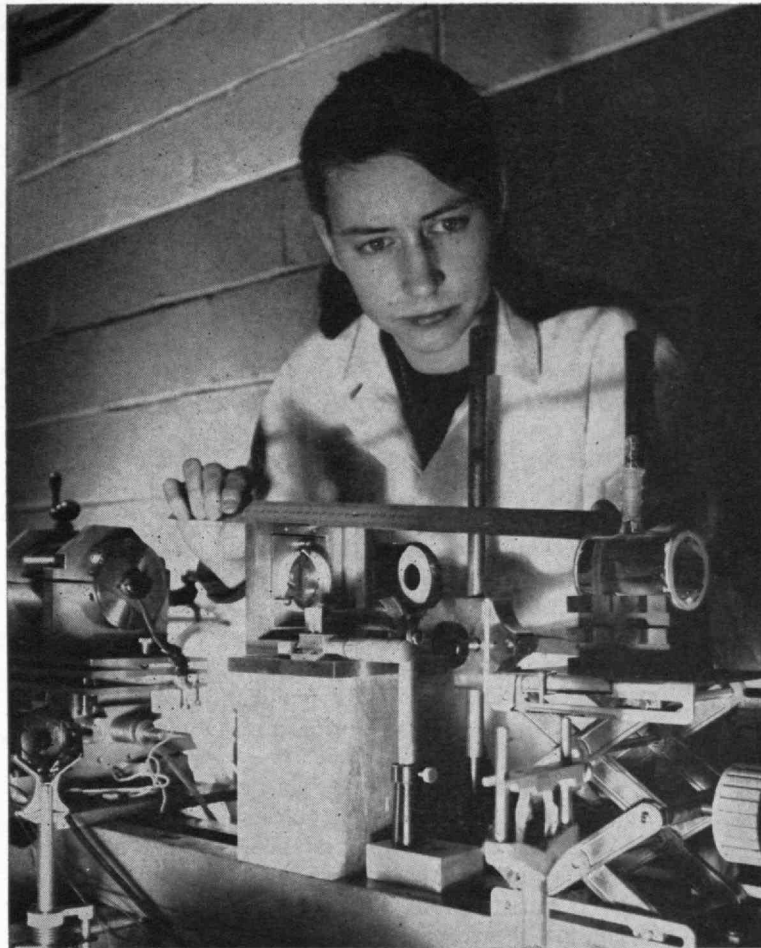


Laser Studies Of Materials

WHEN some transparent materials are illuminated with light of a single wavelength or color, most of the light passes through unchanged but a small portion is scattered in the material. Some of this energy stimulates molecular oscillations that shift the light to a slightly different wavelength. C. V. Raman, an Indian physicist, first showed this effect in 1928. Specific materials shift light by characteristic increments.

The coherent light generated by lasers has made experiments possible in which Raman emissions are much stronger than when incoherent light is used. In some laser experiments, it is possible to record brilliant, multicolor Raman patterns on film.

Two M.I.T. doctoral candidates, Mrs. Elsa M. Garmire (right) and Ray Chiao (below), are studying the effect of light from a ruby laser on "Raman active" materials. In this instance the material is liquid benzene, in a glass cell in line with the laser; other materials studied include nitrobenzene, calcine, and acetone. Provost Charles H. Townes is directing their work in the M.I.T. Spectroscopy Laboratory.



Written by a Computer

A CROSS-POLITY SURVEY, by Arthur S. Banks and Robert B. Textor (*M.I.T. Press*, \$20).

Reviewed by Morton Gorden, '63,
Of the M.I.T. Center for International Studies

SOONER or later, it had to happen. This is a review of a thick book written by a 7090 computer, or at least written in an 8 to 1 computer to human ratio (two inches computer output to one quarter inch human text). Before the conclusion is reached that the once noble profession of author has been automated, let it be noted that this book was designed to save effort, yet create work for future authors in the field of comparative politics. It contains significant data about nearly every country in the world, cross-tabulated in a variety of useful ways.

The authors have collected and categorized information about 115 independent polities in the world. This information ranges from relatively easily quantified variables like population and income to not so easily derived classifications of party systems and power distributions. Furthermore, the authors have sought to measure the degree of co-occurrence among the selected characteristics. From the computer calculations we can learn a good deal about the differences between nations colonized by the British as opposed to the French, nations governed by one or another type of legislative-executive structure, and nations in which the participation of the military is Interventive, Supportive, or Neutral. There is a substantial list of well identified and defined classifications from which to choose, and hundreds of pages of computer printout to inform the analyst about the degree of association among the characteristics under examination.

In addition, there is a useful innovation in the design of computer printout. The tables are all printed in grammatical English prose and the verb of the sentence; tilt, lean, tend, or always, is automatically selected according to the strength of association of the characteristics. This facilitates the analysis of the data for those preferring literature to mathematics.

The authors' choice of data was governed by their reading of contemporary comparative political theory. They present the facts which will provide a good measure of the correctness of hypothesized relationships and provide inspiration and information for new theory. Here conceptualization makes contact with fact, a happy union for all parties involved.

The significance of this book goes beyond what it may contribute to future scholars. It is also symbolic of what has been going on in the social sciences in their recent history. The quantification of social science subject matter and the re-thinking of old concepts of analysis have vivid expression in this volume. While its "human" pages are few in number, they represent a

rather special way of looking at the world; a way which has only become accepted in the social sciences in the last few decades. Those who reject the notion that human behavior may be ordered, patterned, and measured as a first step of the political science contribution, will castigate the book as a mindless exercise. But such people should be mindful that this book will provide source material to prove or disprove standing assertions in comparative politics. Much that is now held to be common sense should not be so common. Tabulations of the sort offered here can contribute to the refinement of the state of the art.

Whether or not this is a useful book really depends on what will be done with it in the future by the present authors and their colleagues. At the moment, except for the research design, it is a source book without mingling of man and machine. The only significance attached to the data is statistical significance, and this alone is not a sufficient criterion for the political scientist's interest. Whether the results of the work will be trivial or appreciable hinges on the next step of analysis when the engineering of data is infused with the art and science of the analysts for whom the data have been so thoughtfully and arduously prepared.

Ethnic vs. Civil Unity

SOUTHEAST ASIA: Problems of United States Policy, a collection of essays edited by William Henderson (*The M.I.T. Press*, \$6.75).

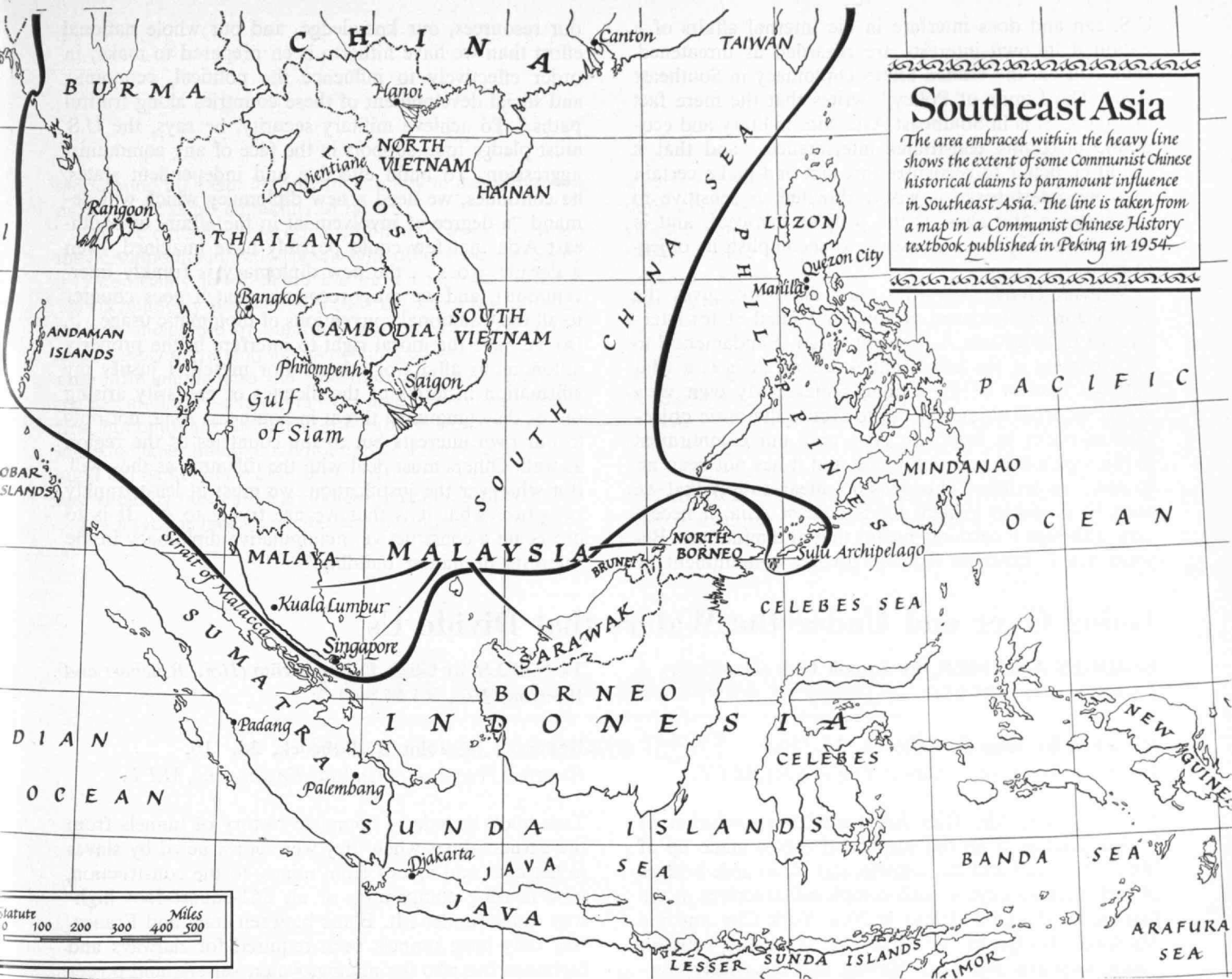
Reviewed by Nelson C. Lees, '53

IN THIS collection of essays, 13 experts discuss Southeast Asia from many points of view bearing on the important policy question: How directly should the U.S. interfere in the domestic affairs of Southeast Asian countries? Indirectly, the essays help to explain why the United States is currently engaged in a war in South Vietnam. The authors do this, not by arguing at length the particular case of South Vietnam, but by discussing the more general question of a major U.S. commitment in all of Southeast Asia.

Basic to a discussion of what to do about Southeast Asia is an analysis of what Southeast Asia *is*. There is substantial agreement that the designation "Southeast Asia" is artificial and inconvenient because it refers to a relatively small geographical area made up of profoundly dissimilar and incompatible states. The sheer variety of cultures, races, languages, and religions which history has cast into the region generates obstacles to organization that make successful statehood an extraordinarily difficult problem.

Clifford Geertz, in "The Social-Cultural Context of Policy in Southeast Asia," writes that "If the political unit is large enough to be viable as a modern state—as Burma, Malaya, Indonesia, or the Philippines—it is culturally, racially, linguistically, and/or religiously very heterogeneous. If it is small enough to be reasonably homogeneous in such matters—as Cambodia, Vietnam, and to a lesser extent, Laos—its ability to subsist as an independent political entity in the modern world is very problematic."

This raises the serious question of the self-justifica-



Southeast Asia

The area embraced within the heavy line shows the extent of some Communist Chinese historical claims to paramount influence in Southeast Asia. The line is taken from a map in a Communist Chinese History textbook published in Peking in 1954.

tion for these new states. The myth of ethnic unity, Geertz says, which was useful in the struggle against colonialism, is not a motivating force for national assertion. He writes that "accepted or resisted, the movement from a cultural (or ethnic) to a political (or civil) definition of the national self is perhaps the most fundamental development on the contemporary Southeast Asian scene and a development that an axiomatic identification of state and nation completely obscures."

In addition, there are many internal and external feuds in which these states are involved; claims and counterclaims over disputed territory; bickering over regional leadership, and confusion and fear over political alignment. Southeast Asia is not a promising area for uniform, region-wide foreign policy.

There is good agreement among the authors, nevertheless, on two basic issues:

- The major threat to Southeast Asia is communism. Its most powerful challenge is, and will continue for some time to be, the strategy of covert aggression and subversion.

- The goals of United States policy should be the development of stable and independent governments, of

liberal political and social environments, and of dynamic and growing economies.

To achieve these goals, military security is essential—but as a prerequisite only. The United States must actively encourage free political, economic, and social development, and this must be done on the basis of an evaluation of the wants and needs of individual states. At this stage, it means the encouragement of neutralism.

Understandably, there is disagreement on specifically what to do, and how far to go. The use of SEATO as the instrument for military security, for example, is variously encouraged, discouraged, and grudgingly accepted as a diplomatic white elephant with which we are stuck. Amos Jordan, in "United States Foreign Assistance to Southeast Asia," makes a strong case for building up light armament in the different states for delay-defense action against aggression until a mobile allied force can intervene. (No good method is proposed for preventing the countries from using the increased armament against each other.)

On the question of U.S. interference in Southeast Asian states, Roger Smith, in "Some Southeast Asian Views of American Foreign Policy," points out that the

(Continued on page 30)

U.S. can and does interfere in the internal affairs of a nation if its own interests are regarded as threatened. John Allison, in "United States Diplomacy in Southeast Asia: The Limits of Policy," writes that the mere fact that the U.S. is in Southeast Asia with military and economic programs constitutes interference, "and that it would be better to recognize this fact and make certain that our interference is wisely directed, is sensitive to the customs and egos of the peoples involved, and is kept to the minimum necessary to accomplish its objectives."

William Henderson, who edits the book, gives the most vigorous statement of how far United States interference in Southeast Asia ought to go. Fundamental to his argument is the belief that Southeast Asia is a vital national interest of the United States. "My own view is that we shall ultimately fail to secure the basic objectives of policy in Southeast Asia until our commitment to the region becomes unlimited, and it has not been up to now," he writes. "This does not mean simply that we must be prepared to fight for Southeast Asia, if necessary, although it certainly means that at a minimum. Beyond this is involved a much greater commitment of

our resources, our knowledge, and our whole national effort than we have hitherto been prepared to make, in order effectively to influence the political, economic, and social development of these countries along fruitful paths." To achieve military security, he says, the U.S. must pledge total support in the face of any communist aggression. To build effective and independent states, he continues, we need a new diplomacy which will demand "a degree of involvement in the affairs of Southeast Asia that few could possibly have imagined, even a decade ago . . . the new diplomacy is frankly interventionist, and we must recognize that it goes counter to all the traditional conventions of diplomatic usage . . . Do we have the moral right to interfere in the properly autonomous affairs of others? For myself, I justify my affirmation in terms of the dictates of necessity arising out of the communist threat in Southeast Asia, not only to our own interests but to the countries of the region as well. Others must deal with the dilemma as they will. But whatever the justification, we must at least frankly recognize what it is that we are trying to do. It is to prosecute a constructive, manipulative diplomacy in the interests of nation building."

Going Over and Under the Waters that Divide Us

BRIDGES AND MEN, by Joseph Gies (*Doubleday & Company, Inc.*, \$5.95).

Reviewed by John B. Babcock, 3d, '10,
Emeritus Professor of Railway Engineering, M.I.T.

IN THIS book, Mr. Gies has traced the evolution of bridge building from the suspended cables made up of fibrous material and the semicircular stone arch bridges of early Roman days to such completed structures as the George Washington Bridge at New York City and the Mackinac Bridge at the Straits of Mackinac between Lake Michigan and Lake Huron, and the nearly completed 17½-mile Lower Chesapeake Bay Bridge-Tunnel project and the Verrazona-Narrows Bridge now being constructed across the entrance to New York Harbor.

The author describes not only these bridges, but tells of the dedicated men who conceived and built them. Such early builders as the two John Rennies (father and son), Smeaton, Telford, George and Robert Stephenson (father and son) are included together with later familiar names such as Captain James Eads, John and Washington Roebling (father and son), Gustav Lindenthal, David B. Steinman, and O. H. Ammann. Of these men, only Ammann is now living and he is active in the design and construction of the Verrazona-Narrows Bridge, the world's longest-span suspension bridge.

Considerable attention is given to the lessons learned from the failures of such bridges as the Firth of Tay, Quebec Bridge, and the "Galloping Gertie" (first Tacoma-Narrows Bridge) and others.

Both layman and civil engineer will be interested in this book which has excellent illustrations and includes an appendix of the major bridges of the world, giving site, type, span, and year of completion; and a complete bibliography.

TUNNELS, by Gösta E. Sandström (*Holt, Rinehart and Winston, Inc.*, \$6.95).

Reviewed by John B. Babcock, 3d, '10,
Emeritus Professor of Railway Engineering, M.I.T.

THIS book includes a complete history of tunnels from the earliest times when they were constructed by slaves to get coal and metals from mines, to the construction, now nearing completion, of an 861-square-foot highway tunnel under Mt. Blanc between Italy and France. Not only have tunnels been required for railways and highways but also for mining, water, sewers, and power plants (including underground powerhouses and tail-races). All of these types are covered in Mr. Sandström's book. Much attention is given to the construction methods used in Europe and in the United States, including the development of explosives, rock-drilling machinery, drill points, shields, and air compressors. The Hoosac Tunnel in western Massachusetts, which had a long and troubled period of construction, also served as a proving ground, under Thomas Doane, for experiments in the use of new machinery and explosives.

Most of the tunnels in the Alps in Italy, France, Switzerland, and Austria were built for railroad routes. The first of these was the Fréjus Tunnel; later ones included the St. Gotthard, Arlberg and Simplon Tunnels, and others. Civil engineers will be particularly interested in the author's chapter on "Tunnel Surveying," describing the methods used for the "control" of alignment and grade. Much attention is given to improved safety methods which have been applied in recent years to eliminate the tremendous toll of lives in earlier tunnel projects. A chapter entitled "The Channel Comedy" depicts the numerous plans which have been presented for a tunnel between England and France.

This book includes excellent sketches and plans, a glossary of terms used in tunneling, and a bibliography.

Modulating the laser light beam is a key to using the vast data-transmission capability of lasers.

IBM scientists achieved a significant advance when they created the injection laser. With other types of lasers, it is necessary to modulate the output light beam itself. This is relatively inefficient. In contrast, since the injection laser is stimulated by electrical energy, it can be modulated simply by varying the stimulating current. Six months after IBM announced the first injection laser—made of gallium arsenide—engineers were able to demonstrate the first successful transmission of voice signals over an injection laser beam. In addition, IBM scientists have pursued the exploitation of new materials for injection lasers and recently fabricated an indium phosphide device.

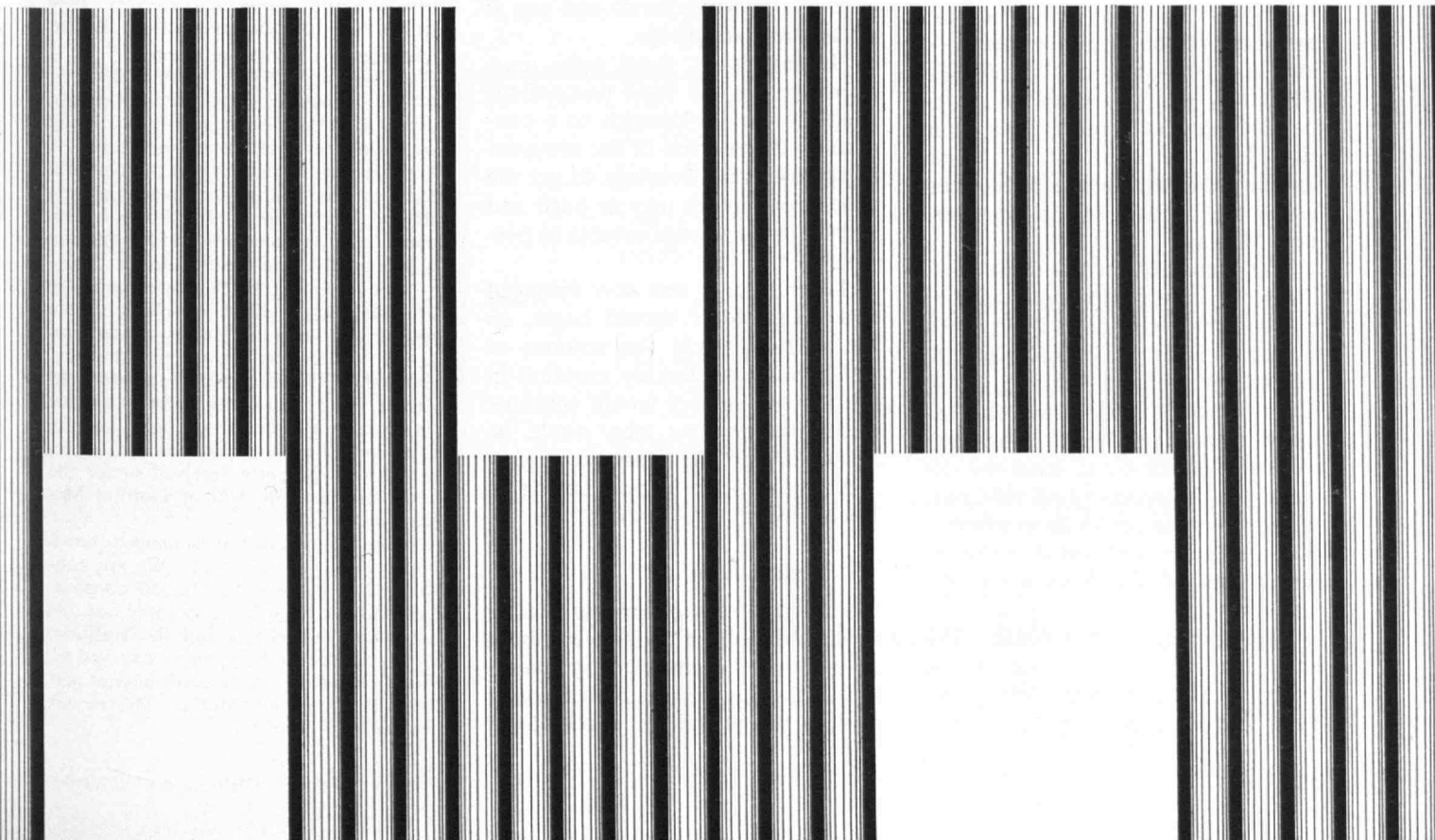
The injection laser is excited by passing a current above

a certain threshold through a p-n junction. Electrons produce photons by falling from the conduction band to the valence band and stimulate regenerative oscillations between sharply cleaved ends of the crystal in the region adjacent to the junction. The reinforced oscillations emerge from a 0.01 square millimeter cross-sectional face as an infrared beam having a spectral width of less than 0.5 Angstrom and an angle of spread of 2.5 degrees. Modulation of the output light can be accomplished by varying the current across the junction.

If you are interested in making contributions in lasers or other areas in which IBM scientists and engineers look for answers to basic questions, write: Mgr. of Employment, IBM Corp., Dept. 615R, 590 Madison Ave., N. Y. 22, N. Y. IBM is an Equal Opportunity Employer.

IBM asks basic questions in lasers

How can we modulate light?



Institute Yesteryears

As recalled by the late H. E. Lobdell, '17

25 Years Ago

"ESTABLISHMENT of a Center of Mathematical Analysis to direct the use of new types of highly comprehensive calculating machines at the Institute has been made possible by a grant of \$45,000 by the Carnegie Corporation of New York," The Review noted. "The Center is being founded primarily for the purpose of encouraging and assisting technological advance in all fields by making available to scientific institutions and industry economical means of carrying out intricate mathematical processes. . . . The program is to be centered in the Institute's Department of Electrical Engineering, under the direction of Professor Samuel H. Caldwell, '25. . . ."

50 Years Ago

THE Harvard-Technology Agreement, which had been approved by the governing bodies of the two institutions on January 9, 1914, provided that all engineering instruction and research would be carried on in the Institute buildings, that the 15 members of the engineering faculty at Harvard would become members of the Institute faculty—and that Harvard would contribute \$100,000 yearly toward the support of the joint venture. This latter sum Harvard expected to derive largely from the income it received under the bequest of the late Gordon McKay.

Unfortunately, in the steps leading to the agreement no account had been taken of the attitude of the trustees under Mr. McKay's will; and in a letter dated April 15, 1914, these hitherto unconsulted trustees made themselves heard. They expressed their desire to have the decision of the Supreme Judicial Court of the Commonwealth as to whether the Agreement conformed to the requirements of the bequest to the university.

"The existence of a doubt," the letter read, "not only seems to us unavoidable on the face of the document, but is so publicly recognized

and discussed that we cannot ignore it, and the proper administration of our trust requires us, in our judgment, to have the question authoritatively determined at the outset."

In the words of Professor Henry G. Pearson, author of President Maclaurin's biography (Macmillan, 1937, p. 215-218), the trustees, "unwilling themselves to begin proceedings that would have an appearance of antagonism, requested Harvard to take the necessary steps to present the question to the court. The explanation of their act is the simple fact that they were human. Friends of McKay, their loyalty to him made them feel that they could not fulfill their whole duty as trustees by merely signing checks payable to the Treasurer at Harvard.

"The fact that they had been considered negligible had produced precisely the effect that Maclaurin had foreseen. Now that they had taken action there was nothing to do but follow the course they indicated, a course which would force the two institutions of learning into a defensive position quite the reverse of their attitude hitherto and not at all to their advantage.

"Inasmuch as some time must elapse before the legal proceedings could be carried through to a conclusion, the best use of the intervening period was obviously to get the experiment under way at once and carry it as far toward success as possible . . .

"Therefore, it was now arranged that cooperation should begin, as far as feasible, in the autumn of 1914. Students already enrolled in the Harvard school would continue there, but no new men would be admitted, and the Harvard professors would begin their teaching at Technology. . . ."

75 Years Ago

"THE ATTENTION of anyone passing through Rogers Corridor at about noon would be attracted by sounds not in the least indicative of young men in the pursuit of knowledge,"

declared the Editor of *The Tech*. "We refer," he continued, "to the custom of turning the reading-room into a sort of restaurant . . .

"To be sure this room, being given up almost entirely to the Freshmen, must savor, more or less, of the high school and academy, and must lack that quiet dignity to be found in any of the reference and reading-rooms attached to the different Courses and occupied exclusively by the upper-class men.

"Loud-talking, etc., are perhaps to be expected in Rogers reading-room, but from literature to lunch seems to us a big jump. The President's notice, which, until a short time ago, was affixed to the door, prohibits eating in that room. There is a room up-stairs especially provided for lunching.

"Will not our readers of '91 bear this in mind, and repair thither to satisfy the god of their bellies and leave the reading-room untainted by the odor of sausages and cold ham, that it may then impress us all with the grimness of its scientific character?"

100 Years Ago

AT THE 21st Meeting of the "Government," held April 4, 1864, President William Barton Rogers "of the Committee on a Seal for the Institute, though not prepared to report any decision, stated that the Committee was making progress, and submitted for the inspection of the Members a proposed design."

* "As it happened, preparation of the case and filing of the pleadings covered a period rather long, even as lawyers view time. . . . It was not until the latter part of February, 1917, that the hearing took place before a single justice of the Court, who took testimony. . . . On October 15, 1917, the case was argued before the full bench. . . .

"The plaintiffs in the case were the President and Fellows of Harvard; the respondents were the McKay trustees, together with the Institute and the Attorney-General of Massachusetts as interested parties. The prayer of the plaintiffs was for instructions whether they could lawfully carry out the Agreement as far as respected the property received under the deeds of trust and will of Gordon McKay. . . .

"The Court's decision, handed down November 17, 1917, read: 'We are constrained to instruct the plaintiff corporation that it cannot lawfully carry out this agreement between it and the Institute, as far as respects the property received by the University under the deeds of trust and the will of Gordon McKay. Decree accordingly.' " (*Ibid.*)



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The Crowd Grows Faster Than Crops

*The Alumni Center of New York
examines the population crisis
and methods of dealing with it*

A PROBLEM that modern technology could solve but won't—that is how a panel of M.I.T. experts characterized "The Population Explosion" for the Alumni Center of New York. An attentive audience of 200 (many took notes), dining at the Hotel Roosevelt on February 24, faced Ward J. Haas, '43, Director of Operations for Pfizer Laboratories; Professor Nevin S. Scrimshaw, Head of the Department of Nutrition and Food Science; Dr. Bertrand E. Bennison, '37, Assistant Director of Research for Ortho Pharmaceutical Corporation; and the moderator, Hudson Hoagland, '24, Executive Director of the Worcester Foundation for Experimental Biology.

Populations are growing much faster than food supplies, particularly in Africa, Latin America, and the Orient, the panelists agreed. "It is an ironical thing," Professor Irwin Sizer, Head of the Department of Biology, pointed out when he introduced the speakers, "that the most humane sciences—medicine and public health—have produced a social problem of great magnitude."

The technical means for solution—farming practices that could sustain vastly increased numbers of people, and effective systems for controlling births—are already in existence. Yet none of the experts thought these sufficient. They foresaw a need for sweeping changes in religious and social customs to bring world population into balance with food supplies.

Professor Sizer outlined the dimensions of the crisis: In Mauritius, life expectancy has increased 18 years in eight years' time, a gain that required a century in Sweden; in Taiwan, life expectancy has increased 20 years in two decades, a gain that required eight decades in the United States. Unless we manipulate either birth or death rates, he said, in 600 years there will be one person for every square yard of dry land on earth.

"The food gap between underdeveloped and developed countries is increasing," reported Professor Scrimshaw. He estimated that a third of the world gets insufficient food, while two-thirds gets food of inadequate quality. India, with 8,000,000 new mouths to feed every year, will by 1980 have to import nearly 10,000,000 tons of grain. He said, "Food production must double by 1980 and triple by the year 2000 simply to catch up with food deficits."

"The whole phenomenon is the ladies' fault," remarked Dr. Haas, only half-joking. With charts and an eighth-root mathematical equation, he singled out as the fundamental cause of population growth the "gross reproduction rate"—the ratio of girl babies who survive to bear children to the total number of women. "So long as there are enough of us men to go around, we don't matter," he said.

Dr. Bennison, evaluating techniques of birth control, called them one of the major advances of this century. "For the first time in history," he said, "there are 100 per cent effective, aesthetically acceptable, fully reversible methods." Foremost among these he cited "The Pill," the oral contraceptive now used routinely by 2,000,000 American women. He also described other ideas now under test: the semipermanent intra-uterine ring, new spermicidal foams and jellies, drugs that block the development of sperm in men, and "vaccines" that make either men or women "immune" to sperm fertilization.

In the question-and-answer period that closed the meeting, Dr. Haas maintained that improved living standards would impel people to limit family size. He cited one effect of economic growth: the inverse relationship between pig-iron tonnage and birth rates. He said, "In cultures where the emphasis is on the dignity of the individual, where human labor is high, where you can't buy a man cheaply, the gross reproduction rate goes down."—MARTIN MANN, '41.

AS BACKGROUND READING, the following publications were recommended: *Our Crowded Planet*, Essays on the Pressures of Population, edited by Fairfield Osborn (Doubleday & Company, \$3.95). *The Population Dilemma*, edited by Philip M. Hauser (Prentice-Hall, Inc., \$3.95). *Technology and Economic Development*, special issue of *Scientific American*, September, 1963, \$.60. *Population and the Control of Fertility*, edited by Hudson Hoagland, '24, Summer, 1959 *Daedalus* (American Academy of Arts and Sciences, Boston, Mass., \$1.25). *The Growth of World Population* (National Academy of Sciences—National Research Council, Washington, D.C.). *This Crowded World*, Frederick Osborn (Public Affairs Committee, Inc., 381 Park Avenue South, New York, \$25).

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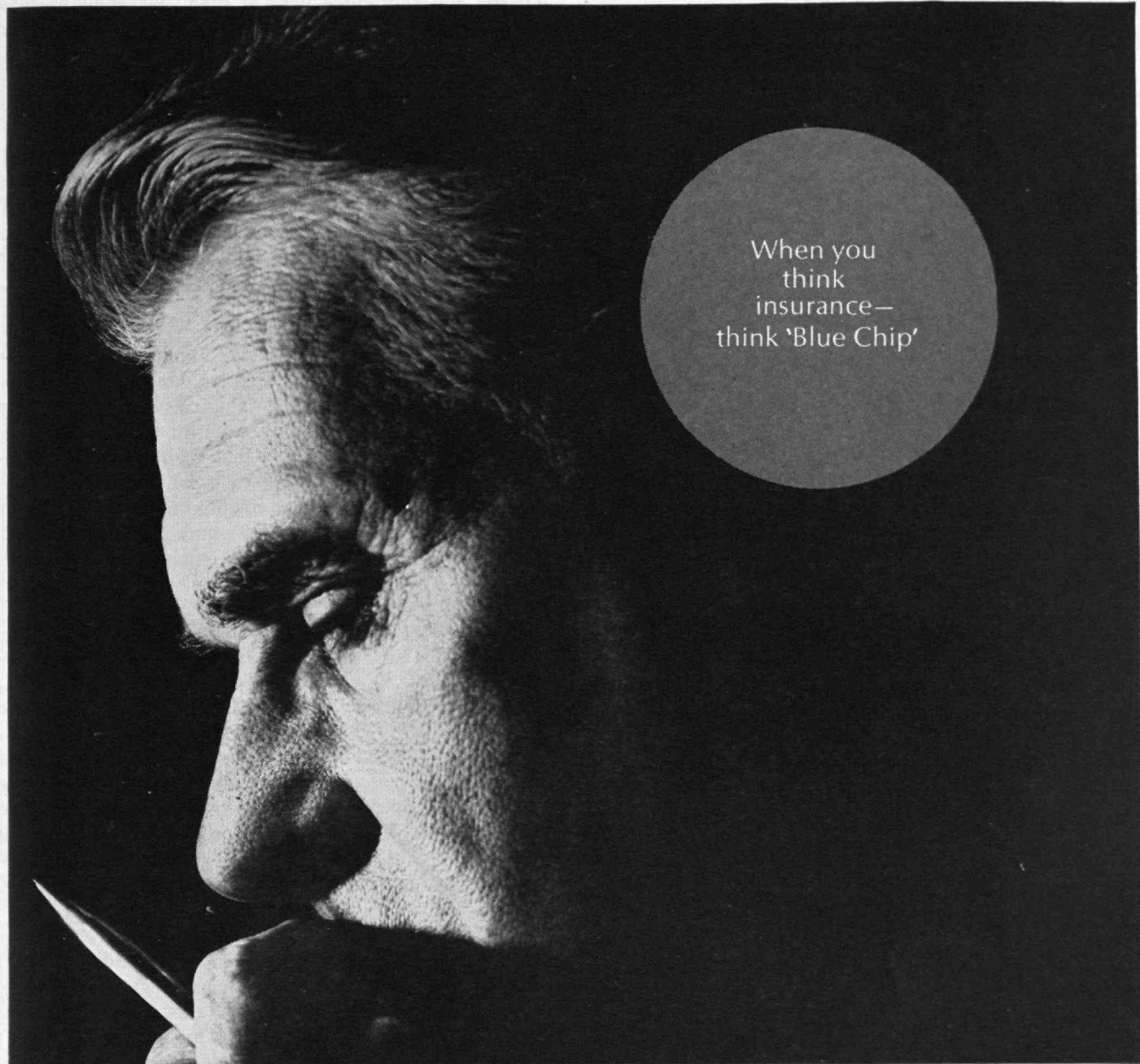
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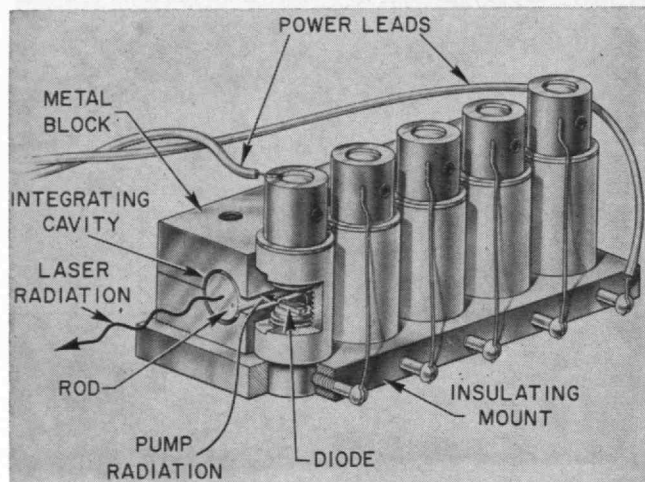
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Laser Pumping

A SIGNIFICANT STEP toward more efficient operation of high-power crystal lasers was reported in the February 1 issue of *Applied Physics Letters* by Robert J. Keyes and Theodore M. Quist, '58, of M.I.T.'s Lincoln Laboratory. They have demonstrated for the first time in practice that luminescent semiconductor diodes can be



used to "pump" a crystal rod-type laser. To do this they used gallium arsenide diodes alongside a calcium fluoride laser in an integrating cavity (as shown in the drawing).

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Conventional optical pumps such as gas discharge (flash) tubes produce light at many wavelengths that do not stimulate laser action. The light put out by luminescent diodes can be tailored to produce particular wavelengths that are needed to pump some of the most promising high-energy crystal laser materials such as neodymium and ruby. Heat effects now limit the intensity and quality of the light emitted by crystal lasers, and Quist and Keyes believe these effects can be reduced by their new and more efficient method of laser pumping. It also may be possible, they report, to increase the repetition rate at which such lasers emit light pulses.

Company Aid to Education

AWARDS of \$250,000 made to 22 colleges and universities this year by the Eastman Kodak Company included \$37,500 for M.I.T. "America's need of colleges and universities staffed with superior science faculties and equipped with the best that technology can provide has never before been so great," President William S. Vaughn said in announcing them. The Eastman Kodak grants to M.I.T. will support graduate work in chemistry, physics, and chemical engineering.

A Fellowship in Biochemistry

A GRADUATE fellowship in biochemistry has been established at M.I.T. by a \$2,000 gift from Bio-Research Consultants, Inc., of Cambridge. In announcing the gift, Freddy Homburger, the firm's President, noted that the education of gifted scientists for full-time research deserves the financial support of industrial enterprises and indicated his organization's intention of contributing regularly to graduate research training programs. The Bio-Research Consultants fellowship at M.I.T. will finance a graduate student for a semester of research under the direction of Professor John Buchanan.

Spring Sports

COLLEGE OARSMEN from 15 schools including M.I.T. will compete in a two-day Syracuse Regatta on Onondaga Lake, near Syracuse, N.Y., this coming June 19 and 20, the weekend following Alumni Day at M.I.T.

Sailing events on the Institute's spring sports calendar include: April 4 and 5, Geiger Trophy, home; April 11 and 12, New England Intercollegiate Sectionals, home; April 18 and 19, Owen Trophy, Coast Guard; April 19, Oberg Trophy, home; April 20, Sharpe Trophy, Brown; April 25, New England Dinghy Eliminations, Coast Guard; April 26, New England Single-handed Eliminations, Coast Guard; May 9 and 10, New England Dinghy Finals, Coast Guard; and May 16 and 17, Monotype Championships, home.

The View From Simmons

IN AN ARTICLE entitled "Get Me To the Church On Time," the *Simmons Review* reports that the girls there have "a prestige ladder" of New England schools. Its top, the article continues, is ivy-clad, but: "M.I.T. is also on a top rung, and, although it might lack the glamour of the Ivy schools, it offers the friendly atmosphere of familiarity. The M.I.T. man is joked about, taken for granted, and sometimes haughtily rejected, but somewhat like the boy next door, he often wins out in the end."

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Computing for America's Cup

(Concluded from page 20)

Since yachts in action don't always sit upright in the water, one factor that must be taken into account is the angle of heel, the angle at which the yacht tips over. A second factor is the angle of yaw. A yacht hardly ever sails a straight line. It constantly slips sideways in a crablike motion. These attitudes are simulated in the tank.

Yaw is set by an adjustment on the dynamometer's arms. Heel is varied by weights inside the hull. Speed and yaw are fixed, but the model is free to roll, pitch, and heave just like a full-size craft.

When the motor on the carriage is started, the experimenters allow the hull to travel 15 feet before starting to take measurements. A run takes eight seconds, and three minutes elapse between successive runs. A number of runs are taken with a given set of values for each of the crucial parameters—speed, yaw, and heel. Then the values are changed, and a new series of runs is recorded. As many as 200 test runs may be completed in a day in order to gather enough data for the computer. But once the data are fed into the computer, the results are forthcoming in less than 60 seconds. Thus Kerwin and Herreshoff can accomplish in two days what the unfortunate Watson might not have done in six months.

Three Computer Programs

Kerwin and Herreshoff have written three separate programs for their data. The first program converts the data from a series of runs into the corresponding values for a full-size version of the model hull being tested.

The second program fits 13 term polynomials to the drag and side forces. From these expressions, tabulations of hull forces at various attitudes and speeds are printed out.

The third program goes on to consider the interaction of aerodynamic and hydrodynamic forces to predict how well a hull will perform under sail.

This program will not only predict the yacht's speed when sailing to windward, but also for any other assumed course in any wind velocity. With this third program it is

possible to study the effect of use of various sail rigs upon the performance of a given hull.

Real and Simulated Runs

To make sure that their results are not simply towing-tank fictions, Kerwin and Herreshoff, often with other colleagues in the Department, sail full-size versions (when these are available) of the models they test to check their predictions. In February they spent a week sailing off Florida on *Robin*, a yacht designed by Fred E. Hood. They made measurements of speed at various angles of heel and yaw in order to see how closely the results agreed with those predicted from the *Robin's* model hull runs.

Once their entire set of programs is operating, it will be possible to simulate entire races on the computer between any number of yachts—without ever getting so much as a single binary digit wet.

While Kerwin and Herreshoff are too fond of sailing to suggest this as a replacement for the America's Cup race (Herreshoff, as a matter of fact, will navigate on one of the potential cup defenders), they do feel their research is going to be of great help to future yacht designers.

The *Nefertiti's* designer submitted to them several proposed changes in the yacht's design, and they have provided predictions of the relative performance of each design.

Their experiments will ultimately produce sailing advice for a given hull. Thus their programs will yield information about how to sail a given hull to windward or, when in the running condition with the wind behind, whether it is better for a given hull to sail directly before the wind or at a slant.

There is a further consequence of their work, too, which Jack Wood, '17, Sailing Master at M.I.T., considers as important as any. The death of Professor George Owen, '94, brought with it a decline in interest in sailing yacht design at M.I.T. This, according to Wood, compounded by the greater glamor of other fields such as astronautics and artificial intelligence, tended to eclipse this ancient art even more. But now with the coming of young Herreshoff to M.I.T. and his collaboration with Professor Kerwin, Wood feels that the design of a fine racing yacht is again in good hands.



spring books from the m.i.t. press

God and Golem, Inc.: A Comment on Certain Points where Cybernetics Impinges on Religion

by NORBERT WIENER

"Render unto man the things which are man's and unto the computer the things which are the computer's," warns the author of *Cybernetics* and recent National Medal of Science winner. Dr. Wiener considers ethics in the relation between man and his servant, the machine that learns in the same way man learns and has the capacity to reproduce itself.

x + 99 pp., \$2.95

Materials and Fuels for High-Temperature Nuclear Energy Applications

edited by M. T. SIMNAD and L. R. ZUMWALT

A critical review of recent developments in materials and fuels for nuclear power reactors, nuclear rocket and ramjet devices, radioisotope power systems, and thermionic converters. Directed to scientists and engineers working with atomic energy and to metallurgists, ceramists, solid-state physicists, and chemists.

416 pp., 316 figures and tables, \$12.00

Analysis in Function Space

edited by WILLIAM TED MARTIN and IRVING SEGAL

Papers drawn from the Conference on Analysis in Function Space and Its Applications, held at M.I.T. in 1963. Mathematicians and physicists interested in the mathematical clarification of functional integration and its application to physical problems will welcome this first and major interdisciplinary book in the field. A comprehensive and current account from mathematical, physical, and intermixed points of view.

192 pp., \$6.00 In press

Reliability of Shell Buckling Predictions

by WILLIAM A. LITTLE

This study examines the reliability of small-scale plastic models in the determination of elastic buckling pressures of thin-shell structures, showing how, and to what extent, the theories of probability and statistics can be applied in the experimental design method.

192 pp., \$6.00 In press

Information Theory: An Introduction for Scientists and Engineers

by GORDON RAISBECK

An introductory essay on information theory for scientists and engineers of all disciplines who have no specialized knowledge of statistical information theory. The author defines and explains in simple terms some fundamental concepts of information theory and uses these concepts to make quantitative estimates of the performance of search and detection systems.

x + 105 pp., \$4.00

Resource Acquisition in Corporate Growth

by DAVID W. PACKER

An examination of a set of interactions important to the process of corporate growth, showing how managerial resource acquisition policies and practices can influence growth success in a corporate system, and how policies and practices can be designed to promote successful system growth.

96 pp., \$4.00 In press

The M.I.T. Press
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New Books

(Concluded from page 30)

Mainly for Specialists

RECENT publications likely to be of special interest to many M.I.T. Alumni have included:

Astronautical Guidance, by Richard H. Battin, '45, Deputy Associate Director, Instrumentation Laboratory, and Director, Space Guidance Analysis Division, Apollo Guidance and Navigation Project at M.I.T. (McGraw-Hill Book Company, Inc., \$15).

Electronic Circuits, 2d edition, by Ernest J. Angelo, Jr., '49; Frederick E. Terman, '24, consulting editor, W. W. Harman and John G. Truxal, '47, associate consulting editors (McGraw-Hill Book Company, Inc., \$11.50).

Experiments on a Simulated Underdeveloped Economy: Development Plans and Balance-of-Payments Policies, by Edward P. Holland, '42, and Robert W. Gillespie, '61 (The M.I.T. Press, \$8).

Faraday, Maxwell, and Kelvin, by D. K. C. MacDonald, a Science Study Series paperback (Doubleday, \$1.25).

Field-Coupled Surface Waves: A Comparative Study of Surface-Coupled Electrohydrodynamic and Magnetohydrodynamic Systems, by James R. Melcher, '62, Assistant Professor of Electrical Engineering at M.I.T. (The M.I.T. Press, \$5).

Inertial Navigation Systems, by Charles Broxmeyer, formerly with the M.I.T. Instrumentation Laboratory (McGraw-Hill Book Company, Inc., \$13.50).

Lighting in Architectural Design, by Derek R. H. Phillips, '54 (McGraw-Hill Book Company, Inc., \$17.50).

Nuclear Engineering Fundamentals, by Roy Weinstein, '50, Alvin Boltax, '51, and Giovanni Lanza (McGraw-Hill Book Company, Inc., \$20).

Propagation and Instabilities in Plasmas, edited by Walter I. Fetterman, with contributions by James A. Fay, '47, Professor of Mechanical Engineering at M.I.T., and Solomon J. Buchsbaum, '57 (Stanford University Press, \$4.50).

Properties of the Thirty-Two Point Groups, with contributions by George F. Koster, '48, Associate Professor of Physics at M.I.T.; John O. Dimmock, M.I.T. Lincoln Laboratory; Robert G. Wheeler and Hermann Statz (The M.I.T. Press, \$7.50).

Quantitative Chemical Analysis, 12th Edition, by Stephen G. Simpson, '16, Associate Professor of Analytical Chemistry, Emeritus, and Lecturer; and Leicester F. Hamilton, '14, Professor of Analytical Chemistry, Emeritus, at M.I.T. (The Macmillan Company, \$8.50).

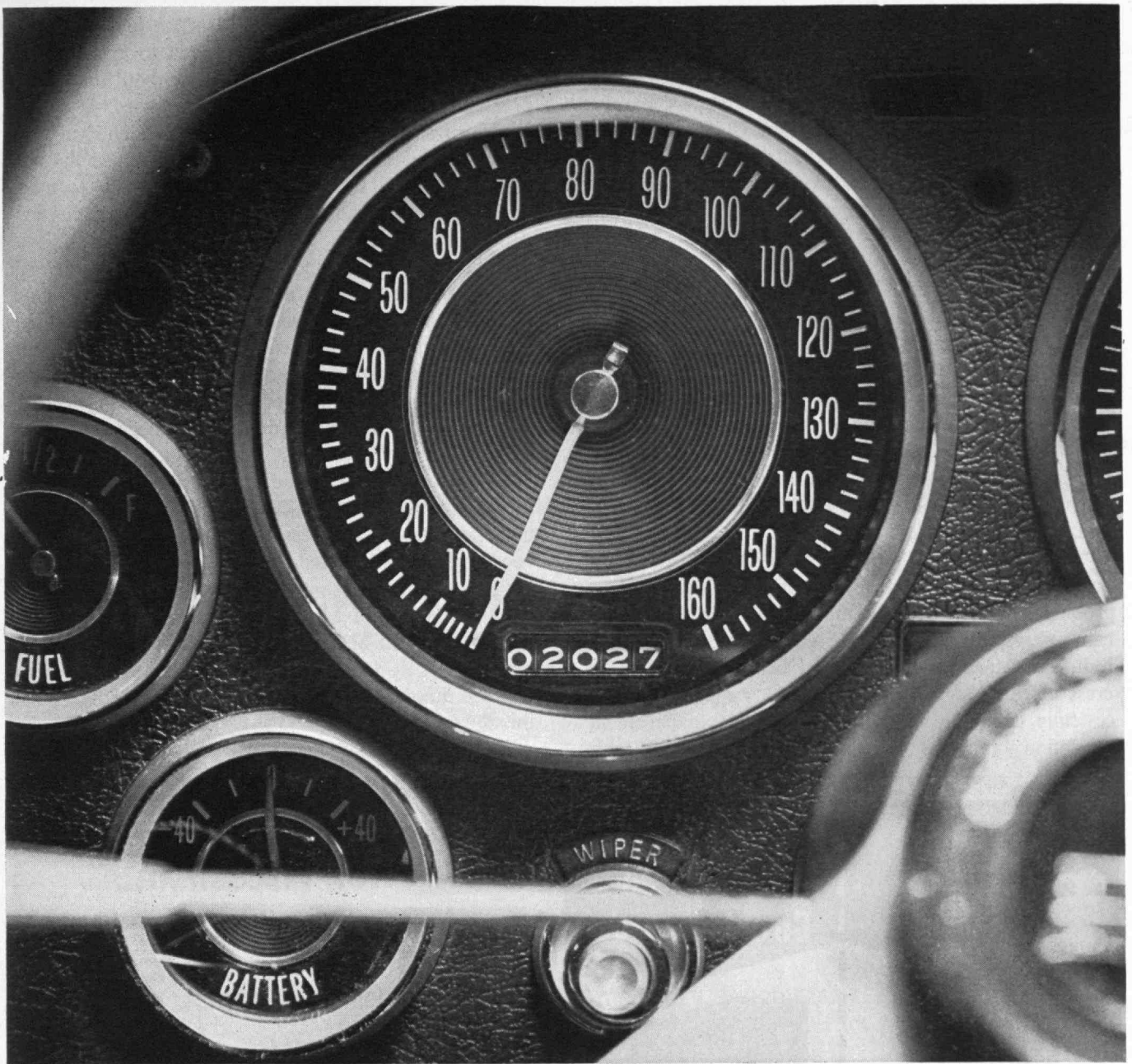
Reliable Computation in the Presence of Noise, by Shmouel Winograd, '58, and Jack D. Cowan, '60 (The M.I.T. Press, \$5).

Rocket Propellant and Pressurization Systems, edited by Elliot Ring, '50, including contributions on the rocket engine and on feedline flow by Mr. Ring and Edward C. Fox, '56, respectively (Prentice-Hall, Inc., \$11.95).

Spectroscopic Coefficients for the p^n , d^n , and f^n Configurations, by Clair W. Nielson, '57, and George F. Koster, '48, Associate Professor of Physics at M.I.T. (The M.I.T. Press, \$8.50).



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Sloan School of Management

(Concluded from page 13)

of the undergraduate class will be Course XV men, a number that has been the one stable slice of M.I.T.'s annual production of undergraduates for a generation. It also includes 46 Sloan Fellows and 25 Senior Executives. . . . Together these students form a lively and enthusiastic group."

They move comfortably, he continued, "from math to Project MAC, from Malthus to Milton, and back home to Management. It is a good system here at M.I.T., and the management student grows well."

The 1950's Dean Johnson observed, may have been a turning point in management education. "Before that period, management was seen as emerging from what I would call the stage of flying by the seat of one's pants, but the traditional business schools were still unable to provide more than a survey of practice and, indeed, practice in surveying.

"I believe we will look back on the 10 years just past as marking the time when problem identification, problem analysis, decision making, and evaluation became a responsible field of study. M.I.T.'s School of Industrial Management is seen, I believe, as riding the crest of this new wave. We believe we are now successfully dealing with these processes in management education, and the field is basically unrecognizable

from what it was 10 years ago. But we must do more than this. We must also educate men to dream effectively. For management must blend both hard and practical appraisal and giant steps forward. We must teach our students how to be tough in identifying the real problem, but to be dreamers in looking at the way things could be. It is this challenge that makes management education to me the most exciting of the academic fields today.

"There are those who will doubt whether one can educate managers in a formal sense and who believe that other patterns of education will fill the pipeline for replacements. To them I say that no major leadership or professional group in history has long survived without developing a planned process of educating its successors. In my opinion, corporate management is no different in this. We must continue to be concerned with the formal part of the manager's education as an explicit field of preparation. The role of the modern university in this process must be strengthened, encouraged and supported.

"For all these reasons, the signal event we mark today, the naming of M.I.T.'s school in this field as the Alfred P. Sloan School of Management, is especially important. . . . I believe that the generations to come will see among their best, men who were educated in the Sloan School.

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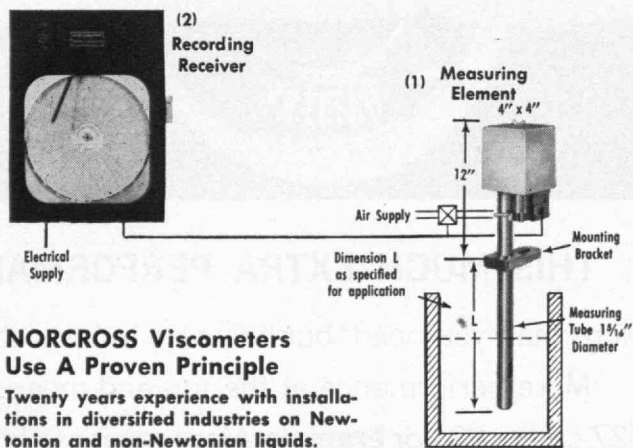
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Integrity and the Scientist

(Continued from page 18)

of a lot of work behind him, and of having failed and knowing when he has failed, and knowing how much he can trust himself. This does not mean blind trust in oneself, but trust in oneself on the basis of experience. When I see a man whose record of performance is too good, I wonder always, is it conceivable that he has got this by playing safe and by playing *too* safe? By not being sufficiently venturesome with his ideas to tackle something that is too big for him. That is, has his great success been due to his bigness or the smallness of his goal? The answer may be by no means obvious either way. The point is that a mere perfect record is not enough.

We often think of mathematics as the rigorous science. And mathematics must be rigorous. It is an art with a difficult medium, and that medium is logical rigor; but it is an art. There are papers—and I'm speaking here about mathematics, but what I say covers physics and engineering, too—there are papers which are without a flaw and as dull as dishwater. There are papers which have flaws, where the author has definitely made a mistake, but where the lead is sufficiently new and clear so that the patching of that mistake is easy.

In other words, there is a certain sort of scientific aesthetics, and in valuing work this plays a part quite as high as that of rigor. The work that cannot be made rigorous is no good. The work which comes very near, has a few flaws in it, but which a hack mathematician can make rigorous, may be very good indeed. In other words, scientific work must have standards other than mere formal correctness.

You've seen that bulk alone is not a standard, that the amount of money spent for it is not a standard, and that even correctness is not a sufficient standard. The point is that originality, to a large extent, consists in having standards which are standards of fruitfulness, not merely of correctness, and in implementing those standards by work. It is something which is of exactly the same nature as artistic originality. The judgment that a paper is not merely a correct paper but an important paper is quite as big a judgment as one that a painting is not only academically correct but that the man has something to say.

Science is a way of saying things and saying interesting things, and interesting things are the things that interest people in the work they are doing. It is in that sense that I do not believe that the present age is anywhere nearly as much more original, or represents anywhere nearly as great an advance in the level of science, as people generally think when they speak of the knowledge explosion. This should be extremely important to you, who are about to enter this field.

I speak from long experience when I say not only that integrity is needed to realize any end worth realizing in science, but also anything else is extremely dangerous. Anybody who believes that he can get away with something that he knows isn't good enough, but that will fool everybody else, is a fool. Anytime a piece of scientific work is done, anything that you gloss over is bound to be hit first. That happens all the time. And the better the work, the quicker it'll be found out. One learns very early in the game that any place where one

has been a little careless is going to be noticed. Now, I don't want to moralize any further, but I think I have enough time left to supplement what I've been saying by a few remarks about the social uses of science.



One of the babies that has been put at my doorstep is the question, Man or Machine? Are the machines going to put people out of business, or are people so superior to the machines that the machines can never catch up with them? I think this is an entirely false way of putting the question. Cybernetics, as I've developed it, was to be the science of communication and control whether in the living organism or the machine. It's the science of systems, whether they are completely mechanical, completely living, or mixed, and that is the point. If we are making the machine for the machine's sake—and that is the attitude of certain gadget-minded people—we might as well abdicate at once. We're licked if we start by giving preference to machines.

Machines can do certain things in a joint system which are superior to what we can do, and certain things which are inferior. I don't say that there is any absolutely sharp line, but I do say that, in general, the machine can be made quicker in its action than man. It can be made more precise in the sense of repeating its action more exactly than man. On the other hand, it is far inferior to man in handling ideas which are still vague. To try to program a computing machine, if you don't quite know what you're doing, is not a very profitable undertaking. You can get much more from the opinions of friends who don't quite understand you than you can by treating machines that way. So, for many purposes, it is necessary to combine human and machine activity. As a matter of fact, this prosthesis business that we're working on is an example of combining human and mechanical parts, and repairing a damaged human system by putting mechanical parts into the joint system. There are other cases where the combination of a mechanical and a human system is equally necessary.

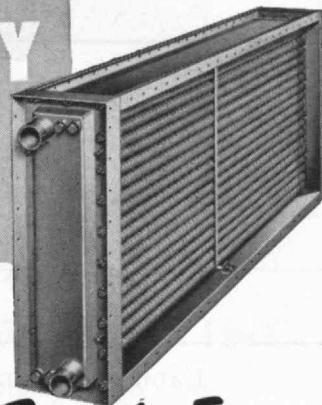
We have now made checker-playing machines which are fairly good and chess-playing machines which are not utterly contemptible, although I don't know that they are good enough to play a full game against a supermaster without giving up pieces. It's not a very good game if the master gives up the queen. Now, in such a machine the idea of learning can be used. You can have a machine which will play a game and then examine the success of its performance and pick out the modes of performance which would have given the greatest success over the past by a statistical study of various elements of performance in the past. That is the way that these machines are made, and they can go very far. But suppose you are asking a machine to translate a language. To use this new device, you have to know what a successful translation is. A successful translation is essentially one that is understood by people as having the same meaning as the original. That is a human criterion.

Conceivably, one might put this human criterion into the machine as a set of rules, but that's very difficult and it's never been done successfully. Until you do that, ma-

(Concluded on page 47)

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Integrity and the Scientist

(Concluded from page 45)

chine translation—if it's to be a learning translation, which is the proceeding that's been found most successful with games—must have a human being as a critic to tell what a good translation is and to enable it to discriminate between good and bad translations, so that it can improve its performance. You cannot improve performance unless you have a measure of performance. But that means that the future of machine translation is not pure machine translation. It is machine translation in a human-mechanical system.

When we use machines to program wars, this question comes up in a very acute way because, unless we know absolutely what we want, there's no way that we'll get it. If you ask the wrong question from a learning machine, you can count on getting the wrong answer. If we ask for winning a war according to certain formal rules, we may get just that, even though it involves the destruction of everything that we want. This fact, that we can only consider the use of the machine by human beings, for human purposes, in a context in which the human purposes are relevant and are not completely subordinated to the machine, is most important at the present time. Cybernetics is extremely useful in the study of organized systems, whether human or mechanical or both; but the contrast between completely mechanical and completely human systems is false, and not only false, but going to get us into a lot of trouble. I thank you.

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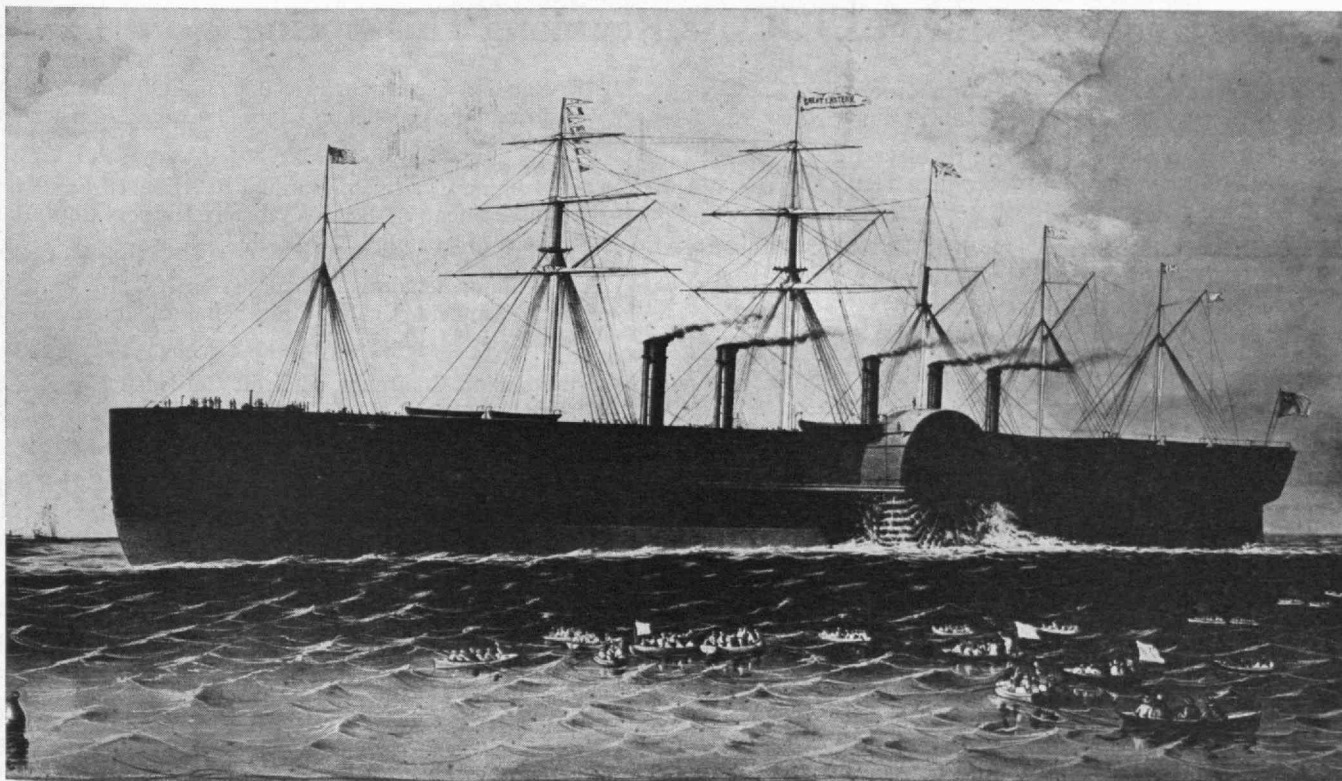
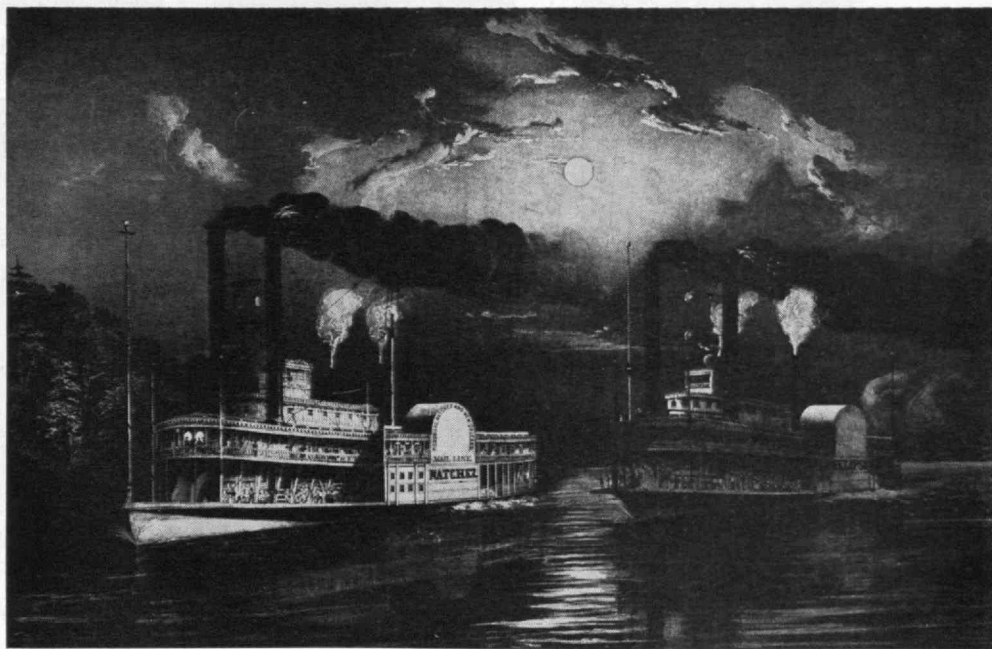
Three Centuries' Ships

Forty of the pictures Captain Clark collected are exhibited by the Hart Nautical Museum

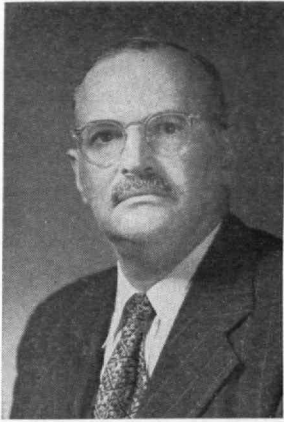
THE LATE Captain Arthur H. Clark's collection of 2,500 pictures of ships is in the Francis Russell Hart Nautical Museum, and 40 engravings, lithographs, and other prints from it were exhibited this winter in the Hayden Gallery at M.I.T.

At the right is a race between the *Natchez* and the *Eclipse* on the Mississippi in 1860, and below the giant *Great Eastern*, 1857, about which much has been written.

Captain Clark left Boston Latin School at 17 to go to sea, was first officer on a troopship during the Civil War, became master of ships in the China trade, and survived two shipwrecks. From 1895 until he retired at the age of 80 he was American representative of Lloyd's.



Members of the M.I.T. Faculty Who Will Retire June 30



Philip Franklin



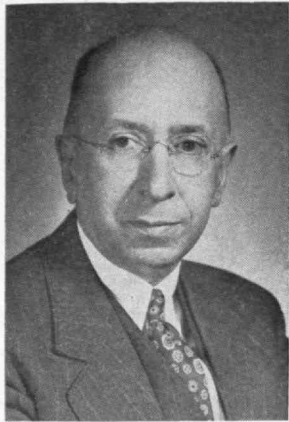
John T. Norton, '18



Arthur R. von Hippel



John E. Burchard, '23



Eugene Mirabelli, '19



Frank K. Bentley



Samuel C. Collins



Wayne B. Nottingham

Places and Dates for M.I.T. Class Reunions This Spring

1899: Reunion Chairman, William A. Kinsman, 348 High Street, Newburyport, Mass.; M.I.T. Campus, June 12-15.

1904: Reunion Chairman, Carle R. Hayward, 120 Beacon Street, Boston; Stanley McCormick Hall, M.I.T. Campus, June 12-15.

1909: Reunion Chairman, John F. Davis, 33 Arlington Street, Cambridge 40, Mass.; New Ocean House, Swampscott, Mass., June 14.

1914: Reunion Chairman, Ray P. Dinsmore, 1 Overwood Road, Akron, Ohio; Charter House Motor Hotel, Cambridge, Mass., June 12-14.

1915: Class Cocktail Party. Chairmen: Albert E. Sampson, 9 Thorndike Street, Beverly, Mass.; Barbara Thomas; M.I.T. Faculty Club, June 15, 4:00 P.M.

1916: Reunion Chairman, Ralph A. Fletcher, P.O. Box 71, West Chelmsford, Mass.; Chatham Bars Inn, Chatham, Mass., June 12-14.

1919: Reunion Chairman, Wilfred O. Langille, Diehl Manufacturing Company, Finderne, Somerville, N.J.; Chatham Bars Inn, Chatham, Mass., June 12-14.

1924: Reunion Chairman, Charles O. Duevel, Jr., 33 Coit Lane, Norwich Town, Conn.; Oyster Harbors Club, Osterville, Mass., June 12-14.

1929: Reunion Chairman, Eric Bianchi, 390 Grove Street, Needham, Mass.; Wianno Club, Osterville, Mass., June 12-14.

1934: Reunion Chairman, Norman B. Krim, 15 Fox Lane, Newton Center 59, Mass.; Wychmere Harbors Club, Harwichport, Mass., June 12-14.

1939: Reunion Chairman, George Beesley, 10 Keniston Road, Lynnfield Center, Mass.; Baker House, M.I.T. Campus, June 12-14.

1944: Reunion Chairman, F. Scott Carpenter, 36 Middle Street, Hingham, Mass.; Curtis Hotel, Lenox, Mass., June 12-14.

1949: Reunion Chairmen: Walter A. Row, Jr., 29 Longmeadow Road, Weston, Mass.; Stanley V. Margolin, 215 Grove Street, Auburndale, Mass.; Belmont Hotel, West Harwich, Mass., June 12-14.

1954: Reunion Chairman, Robert E. Anslow, 32 Woodland Road, Lexington, Mass.; Curtis Hotel, Lenox, Mass., June 12-14.

1959: Reunion Chairman, David W. Packer, 11 Carver Road, Watertown, Mass.; Chatham Bars Inn, Chatham, Mass., June 12-14.

Club News

Women's Association Entertains M.I.T. Undergraduate Coeds

The M.I.T. Women's Association entertained 19 undergraduate coeds; Professor and Mrs. Lynwood S. Bryant, the faculty residents at McCormick Hall; and Jacquelyn A. Mattfeld, Dean of Women, at a midday meeting on February 15 in the Emma Rogers Room at Tech.

After the luncheon, Ruth Pitt, '39, M.I.T.W.A. President, announced that Dawn Friedell, a physics major, was the 1964 recipient of our annual award for outstanding scholarship, granted to a coed in the junior class.

Following the \$100 award presentation, Dr. Rita M. Kelley, '41, discussed the growing interrelationship between the medical field and all of the scientific disciplines, stressing the opportunities for women in medicine and medical research. She described this field as one where women can make valuable contributions.

Members present at the meeting included Margaret Auerbach, '41, Margaret Coleman, '50, Winifred Cunningham, '27, Mary Elder, '43, Esther Garber, '39, Cora Gross, '09, Grace Farrell, '29 Elizabeth Haskins, '35, Rita Kelley, '41, Alice Kimball, '36, Alice M. MacCready, '42, Margaret Olfene, '19, Janet Perkins, '52, Marjorie Pierce, '22, Ruth Pitt, '39, Judith Rona, '56, Charlotte Sage, '13, Sue Schur, '60, Helen Seraickhas, Linda Sprague, '60, Marjorie Swift, '41, and Fran Wypler, '39.—Susan E. Schur, '60, Recording Secretary, 1 Emerson Pl., Boston 14, Mass.

Chicago Club Topic Is Space Age

The Chicago M.I.T. Club met on January 30 at the Chicago Engineers' Club to hear Dan Q. Posen, noted scientist, educator, TV personality, and winner of six Emmy Awards. He spoke on "The Age of Space." E. Charlton Crocker, '43, Laboratory Manager at the Nalco Chemical Company, Chicago, arranged the meeting, and 75 Alumni and their wives attended. The club was to meet for dinner on March 17 and attend "How to Succeed in Business Without Really Trying."—Bernhard W. Romberg, '56, Arthur D. Little, Inc., 130 North Franklin Street, Chicago 6, Ill.

Route 128 Club Considers NASA

The Route 128 Club of M.I.T. met for lunch on January 22 at the Lexington Inn, Lexington, Mass., and heard D. Brainard Holmes, Senior Vice-president of the Raytheon Company and former Director of Manned Space Flight for NASA, discuss our national space program.—Robert E. Anslow, '54, Secretary, 32 Woodland Road, Lexington 73, Mass.

Future M.I.T. Club Meetings

Following are the dates and principal speakers as announced at the time of printing for M.I.T. club meetings during April and May, 1964. For more details consult the club secretary in your city.

April 8—Worcester—Professor Huston C. Smith

Secretary: Arnold A. Kramer, '52, Mechanics Upholstering Co., Worcester

April 9—Boston—Program to be announced

Secretary: John M. Reed, '51, Room 831, 73 Tremont Street, Boston

April 9—M.I.T. Alumni Center of New York—

James R. Killian, Jr., '26, and Congressman George Miller
Executive Secretary: James N. Phinney, United Engineering Center,
345 East 47th Street, New York

April 21—St. Louis—Prof. Bernard S. Gould, '32, and D. Hugh Darden

Secretary: Paul A. Lux, '42, 15 Enfield Road, St. Louis, Mo.

April 23—New Haven—Professor Charles P. Kindleberger

Secretary: Jay R. Bonnar, '57, Anaconda American Brass Co., New Haven

April 29—Washington, D.C.—Program to be announced

Secretary: Richard R. Martin, '45, Decision Systems, Inc., Kennington, Md.

May 4—Pittsburgh—Gulf Research & Development Laboratories

Secretary: Eli I. Goodman, '50, Westinghouse Electric Corporation,
Astronuclear Laboratory, P.O. Box 10864, Pittsburgh

May 8—Worcester—Professor Hans Mueller

May 8—Portland, Me.—Professor Robert S. Harris, '28

Secretary: Robert A. Lindquist, '51, Atlantic Bearing Corporation, Portland

May 14—Boston—Professor Robert R. Shrock

Additions to this column of meeting announcements are welcome. Copy is due April 20 for the June issue of The Technology Review and should list your club meetings for June and July. Send your copy to: Alumni Secretary, M.I.T. Alumni Association, Room 1-280, Cambridge 39, Mass.

New Mexico Alumni Hear Archeologist

The M.I.T. Club of New Mexico began 1964 by holding a luncheon at the Palace Restaurant in Santa Fe, with 43 Alumni and wives in attendance. Alfred Dittert, Director of the Museum of Anthropology at Santa Fe, presented an illustrated lecture on the archeology of the Navajo Dam area—an entertaining as well as scholarly talk.

Club President Billy C. Caskey, '56, was written up in the January 17, 1964, issue of the Sandia Lab News, the official publication of Sandia Corporation. Bill is a Scoutmaster and recently completed the requirements for the Wood Badge award, climaxing seven years of work in scouting.

We are sorry to report the death of Mrs. Eric R. Jette, '30, of Santa Fe, who died while on a combined business and pleasure trip to New York.

Colonel Leo A. Kiley, '39, was awarded the Legion of Merit (First Oak Leaf Cluster) recently. Leo, who is now Vice Commander of the Air Force Cambridge Research Laboratories in Bedford, Mass., maintains his ties with New Mexico by being Club Representative on the Alumni Council.—Thomas J. Raftery, '31, Secretary-Treasurer, 1505 Valencia Drive, N.E., Albuquerque, N.M.

Central Massachusetts Club Hears Professor Greeley

January 24 was an evening of camaraderie and extreme interest as the M.I.T. Club of Central Massachusetts held its "Ladies' Night" at Sterling Inn. Forty-six M.I.T. men and their ladies attended.

Prof. Roland B. Greeley, Director of Admissions, spoke on "Everybody Wants to Go to College." More than 30 minutes of lively questions ensued, in which the wives, as mothers of would be college students, took the more active role.

Also present was Thomas P. Pitre, formerly Director of Student Aid and now Director of Clubs. His advice was sought often in the discussion period.—Arnold A. Kramer, '52, Secretary, 88 Longfellow Road, Worcester 2, Mass.

Boston Club Hears M.D.C. Commissioners

The M.I.T. Club of Boston met on February 12 at the Union Oyster House to hear Robert F. Murphy and John F. Haggerty, Commissioners of the Metropolitan District Commission, discuss engineering, political, and government procedure problems.—John M. Reed, '51, Secretary, Room 831, 73 Tremont Street, Boston, Mass.

Southern Californians Elect 1964 Officers

The M.I.T. Club of Southern California held its annual meeting January 21 at the Los Angeles Athletic Club. More than 50 Alumni and their wives attended. The club voted to amend several articles of the club constitution, in order to allow the seating of other Alumni area representatives on the Board of Governors of the club. The nominating Committee Chairman, T. Gary Loomis, '44, presented the following slate of officers for 1964: President, Albert A. Livingston, '49; secretary, Arthur Schwartz, '47; treasurer, Martin R. Chetron, '56; first vice-president, John W. Barriger, '49, second vice-president, George W. Bond, '57; assistant secretary, Bradford Bates, '59; assistant treasurer, William Hawe, '52; the board of governors, T. Gary Loomis '44; Governors at Large, Robert Welles, '15, Raymond B. Stringfield, '15, George M. Cunningham, '27, Page Golsan, Jr., '34, Richard S. De Wolfe, '36; Class Representatives, 1918 and prior, Hiram E. Beebe, '10; 1919-1923, Colonel Philip Schwarz, '23; 1924-1928, Dean E. Batchelder, '28; 1929-1933, Robert McKensie, '31; 1934-1938, Harold H. Strauss, '38; 1939-1943, Ray O. Wyland, '42; 1944-1948, Richard J. Steele, '46; 1949-1953, Charles M. Walker, '49; 1954-1958, James Chorak, '56; and 1959-1963, Joseph R. Skenderian, '61. The slate was elected unanimously.

Our guest, Bryant Essick, '22, discussed his recent trip to the Pacific defense perimeter of the U. S. Defense System. He visited Honolulu, Japan, Okinawa, Hong Kong, Thailand, South Vietnam, Korea, Formosa, and the Philippines, and related some of the unclassified incidents which occurred on his trip. A question period followed the talk.

Programs planned for this year include: March, trip to an automobile assembly plant; May, trip through an aerospace facility; August, train trip to San Juan Capistrano; September, guest speaker at a meeting in Pasadena; and for November, we are endeavoring to obtain an astronaut as a guest speaker.—Arthur Schwartz, 47, Secretary, 8355 Blackburn Avenue, Los Angeles, Calif.

Rocky Mountain Club Entertains Students

The Rocky Mountain Club of M.I.T. held a luncheon on December 30 at the Denver Athletic Club for undergraduates from this region. It was well attended by 15 Alumni and an equal number of students. The latter gave short talks on "What's going on in Cambridge."

A dinner meeting on January 13 at the Petroleum Club featured a talk by Professor Irwin W. Sizer, Head of the Department of Biology at M.I.T., on "Meddling with Medicine at M.I.T." Wives were invited, and attendance was a record-breaking 65. Dr. Sizer used slides to help all understand his subject.

On January 21 a dinner meeting of Educational Counselors from area high schools was attended by 32. Of the 27 counselors invited, 24 were present. In addition, five of our local M.I.T. educa-

Western Pennsylvania Club Plans to Visit Region's Science and Engineering Centers

The M.I.T. Club of Western Pennsylvania is planning to visit the Gulf Research and Development Laboratories for its May 4 meeting. Dinner at 6:30 P.M. at the Gulf cafeteria will be followed by a tour of the research center at 7:30 P.M. The center is located on a 53-acre plot at Harmaville, Pa., about 14 miles northeast of Pittsburgh.

Some of the facilities at the research center are a Nuclear Science Laboratory containing a three-million electron volt Van de Graaff accelerator to develop applications of nuclear energy; an Automotive Products Laboratory and companion Fuel Blending Building providing the most advanced facilities for fuel and lubricant testing in internal combustion engines; a Production Research Laboratory and auxiliary drilling setup for greater emphasis on research on rock penetration, reservoir mechanics, and the production and transportation of crude oil; and a wing housing an IBM 7094 computer for the development of mathematical procedures and the application of advanced computational techniques to the solution of a wide variety of company problems. A building completed in 1962 is a new Product Service Labora-

tory for the rapid and accurate analysis of the hundreds of samples that are produced throughout the research center each day, as well as rendering technical service for the world-wide operations of the Gulf Companies. In the spring of 1963, the three-story Petrochemicals Laboratory for the development of new processes and products so necessary to this rapidly growing segment of the petroleum industry was completed.

The research and development program embraces each phase of the corporation's integrated interests, including exploration, drilling, production, and petrochemicals, and provides complete engineering service for the corporate application of all research activities. Gulf Research & Development Company is the only petroleum research laboratory in the United States, perhaps the world, that is so integrated.

The visit to Gulf promises to be most interesting, and a precedent for annual visits to major scientific and engineering operations in the club area. Members and their guests are urged to attend.—Eli I. Goodman, '50, Secretary, Westinghouse Astronuclear Laboratory, P. O. Box 10864, Pittsburgh, Pa.

tional counselors, together with B. C. Emerson, '39, the new club President, and Johnson Mossman, '50, the Head of our scholarship committee, attended the dinner. Charles E. Brokaw, '22, Chairman of the M.I.T. Educational Council for Colorado, acted as host. Associate Professor Robert M. Dowben, of the M.I.T. Department of Biology, gave an interesting talk on "Life Sciences." We in Denver hope this type of gathering can be repeated.—Benjamin A. Oxnard, '25, Secretary, The Great Western Sugar Company, P.O. Box 5308 Terminal Annex, Denver 17, Colo.

Delaware Valley Group Hears President Stratton

The M.I.T. Club of Delaware Valley held its winter dinner meeting on January 21 at the Union League in Philadelphia. One hundred and fifty-four members and guests greeted President and Mrs. Julius A. Stratton, '23, and Donald P. Severance, '38, Executive Vice-president of the Alumni Association. Dr. Stratton spoke on undergraduate education at M.I.T.

Two members of the Corporation, Walter J. Beadle, '17 and Donald F. Carpenter, '22, were present. C. William Hargens, 3d, '41, President of the club, announced that Mr. Carpenter had been nominated to be President of the Alumni Association for 1964.

Club officers elected were: C. W. Hargens, '41, president; Herbert R. Moody, '41, first vice-president; Robert G. Fisher, '44, second vice-president; Gilbert P. Monet, '43, third vice-president; John B. Murdock, '41, secretary; Lee C. Eagleton, '44, treasurer; Joseph T. Lester, Jr., '44, assistant treasurer; and as executive committee members, John C. Melcher,

'28, Edward S. Halfmann, '36, Monroe Brown, '42, George S. Saulnier, '47, John D. Fogarty, '49, Jack A. Raymond, '58, and Christian Schlemmer, '59.

The 1964 membership drive is over and the membership is now 355.—John B. Murdock, '41, Secretary, 15 Runnemeade Ave., Lansdowne, Pa.

Indiana Alumni Consider Food and Drug Problems

Forty-two Indiana Alumni and their wives met at the Manger Motor Inn to hear James R. Collins talk on "Poisons All Around Us." Mr. Collins, chief of registration of the Licensing Section, Food and Drug Division, Indiana State Board of Health, was invited to speak by Dr. Samuel H. Hopper, '33, Chairman of Indiana University's Department of Public Health.

Mr. Collins discussed label requirements for household drugs that can cause death, especially to small children. Examples are aspirin, kerosene, detergents, and bleaches. Indiana is unique in requiring manufacturers to file data for use by hospitals and physicians. Labels are also required to give first aid information. He differentiated between poisons as we generally view them and toxic materials. As a result of the work in Indiana, which began with the Household Poison Act of 1927, the Federal government is also safeguarding citizens in the same general way, and 50 centers have been established throughout the nation where information is filed for instant use.

Our next scheduled meeting is a picnic on Sunday, June 7, at Morse Reservoir.—Thomas G. Harvey, '28, Secretary-Treasurer, 5685 North Delaware Street, Indianapolis, Ind.

Professor Saloma Visits Central Pennsylvanians

On December 9 and 10, 1963, the Central Pennsylvania area was visited by Assistant Professor John S. Saloma, of the M.I.T. Department of Political Science, who toured selected area high schools on behalf of the M.I.T. Educational Council.

The Central Pennsylvania Club is planning a spring meeting. There was no fall meeting.

The following Alumni have left the Central Pennsylvania area: John W. Gaylord, '33, formerly of Lancaster, Pa., to 52 Monroe Road, Princeton, N. J.; Henry G. Gastrich, '44, formerly with the Northwestern Mutual Life Insurance Company in Harrisburg, to 517 North Charles Street, Baltimore, Md.; Ralph R. Calabrese, '53, formerly of Lancaster, Pa., to 187 Topsfield Road, Wenham, Mass.; Morris Berg, '53, formerly of Lancaster, Pa., to 145 Bella Vista Drive, Grand Blanc, Mich.; Robert L. Fortenbaugh, '63, formerly of New Cumberland, Pa., to 107 East 11th Street, Huntington Station, L. I., N. Y.

During 1963 we were saddened by two deaths: Robert Faulkner, '04, Gravel Hill, Schaefferstown, Pa., on July 26, and Herbert C. DeStaebler, '21, 740 North Duke Street, Lancaster, Pa., on November 2. Herb DeStaebler had been quite active in our club.

William L. Pepper, '61, now is married and living on Brentwater Road in Camp Hill, Pa. Bill was recently elected President of Resistance Products Company in Harrisburg to succeed his father, who now becomes Chairman of the Board. From Karl E. Katz, '50, in York we have learned of two new area alumni: Everad M. Lester, '28, Hotel Yorktowne, York, and George Shumway, '51, "Edelweiss," R. D. 7, York. Mr. Lester is Director of Manufacturing of the Advanced Products Group of AMP who recently purchased and took over the old Naval Ordnance Plant in York. George Shumway, moved to York from San Diego via a 10-week period of work in South Africa.

Your secretary spent a very nice evening not too long ago with Harold R. Spaans, '30, at his new home in Wayne, Pa., which is near Valley Forge. Hal is now working for Bell Telephone in Philadelphia. Bell sent him to Stanford University for a course of study during the summer of 1962 at which time he also visited the World's Fair in Seattle with his family.—Robert K. Peterson, '48, Secretary-Treasurer, 566 Brentwater Road, Camp Hill, Pa.

Hawaiian Club Welcomes James K. Honke, '63

A recent addition to the M.I.T. Club of Hawaii membership is James K. Honke, '63, of Waialua, Oahu. A mechanical engineering alumnus, he returned to Hawaii immediately after graduation and is employed at the Waialua Agricultural Company, Ltd., as assistant to the Crushing Plant superintendent.—Franklin Y. K. Sunn, '52, Secretary, 195 South King Street, Honolulu, Hawaii.

Class News

'95

Our thanks to John A. Holbrook, '10, of Rowayton, Conn., who sent us a newspaper clipping from a Norwalk, Conn., paper. Our longtime friend and classmate, **Thomas Hollis Wiggin**, died January 17 at the Norwalk Hospital. The article reads: "Thomas Hollis Wiggin, a civil engineer who had been a consultant to the water companies of 100 United States cities, died this morning at Norwalk Hospital. He was 90 years old and lived at 37 Rowayton Avenue. Mr. Wiggin, at his death, was consultant in the construction of a dam near Wilkes-Barre, Pa., for the Pennsylvania Gas and Water Company. He was graduated from M.I.T. in 1895. In World War I, he became a lieutenant colonel in the Army Engineers Corps. Later he was a civilian consultant on a flood control project in China.

Mr. Wiggin was chairman of the Spillway Committee of the New York City Board of Water Supply and had been consulted in the design of a system that supplies the billions of gallons of water used each day by New Yorkers. He was a member of the American Society for Testing Materials and was also on the board of the American Standards Association. He leaves his wife, the former Harriett Scott; two daughters, Mrs. John Young, and Mrs. William Jennings; a son, Joseph F. Wiggin; two brothers, and two sisters." —**Andrew D. Fuller**, Secretary, 120 Tremont Street, Boston.

'96

Your secretary was scanning a Boston newspaper, when the words "Boston Tech" in capitals appeared in a column on sports, so naturally I read the article and learned that Boston Technical High School is the Boston Tech. It was a relief to know that crowded Cambridge had not compressed M.I.T. and pushed it back across the ice to a devastated area in "The New Boston." . . . "The Radiologist," published in Chicago last fall, had an excellent story, "Hot cathode tubes are 50 years old . . . their inventor is 90 . . . To some it may come as a surprise that this man is still living." A most interesting story of the inventor's life and scientific achievements follow. The students of the American College of Radiology evidently appreciate the work of Dr. **Will Coolidge**. Next to the last of six pages shows a picture of Dr. Coolidge explaining to Thomas A. Edison the process of working tungsten to make it ductile. Wonder if "surprise" includes all 33 of '96 still living?—**James M. Driscoll**, Secretary, 129 Walnut Street, Brookline.

Happy Birthday

Congratulations are due during April to an alumnae who will celebrate her 95th birthday, and to 4, 6, and 17 Alumni who will celebrate, respectively, their 90th, 85th, and 80th birthdays, as listed below with dates of birth:

April, 1869—**HARRIET FAXON**, '99, on the 14th.

April, 1874—**WILLIAM E. BARBOUR**, '96, on the 1st; **MYRON E. PIERCE**, '96, on the 8th; **EDMUND C. LITTLE**, '98, on the 17th; and **CHARLES E. BATCHELDER**, '96, on the 25th.

April, 1879—**WALDEMAR R. KREMER**, '04, on the 8th; **EDWARD S. BAKER**, '05, and **EMERY J. WILSON**, '04, on the 16th; **OMAR S. SWENSON**, '03, on the 26th; **OSCAR S. PULMAN**, '06, on the 27th; and **MRS. GEORGE H. NOONE**, '03, on the 29th.

April, 1884—**RALPH N. SARGENT**, '06 on the 1st; **ARTHUR M. CHENEY**, '06, on the 4th; **ALFRED L. COUPE**, '04, on the 7th; **ARTHUR H. JANSSON**, '07, on the 9th; **NORMAN LOMBARD**, '05, on the 13th; **ROBERT F. LUCE**, '05, on the 14th; **RANSOM C. GROVENOR**, '06, on the 17th; **ROY A. SEATON**, '11, on the 17th; **HALLET R. ROBBINS**, '05, on the 18th; **R. E. BLANKENBUEHLER**, '09, and **E. KENT LAWRENCE**, '06, on the 21st; **ALBERT K. COMINS**, '09, and **WALTER A. HOPKINS**, '06, on the 23rd; **ALEXANDER HICKS**, '06, on the 24th; **JOHN P. WETHERILL**, '07, on the 28th; and **SAMUEL CABOT**, '09, and **PAUL W. MACK**, '06, on the 30th.

'97

The usual "no news" for the fall months has been augmented by our faithful **Will Binley** with a postcard from Nassau, where he is recuperating at a hospital. Our wishes for a speedy recovery to you, Will. . . . Word has just arrived of the loss of **Harry Ballou** on December 15, presumably at Providence, where he was a partner in Jenks and Ballou for many years. . . . A letter has recently come from Wilson **Hammond** the elder of **Charles'** two sons, giving the date of his father's death as September 4, 1963, at the age of 90. The letter also included an outline of **Charles'** career. **Charles** is survived by two sons, both M.I.T. men, **Wilson**, '28, and **Roger**, '35, and several grandchildren. As I mentioned in past notes, I did not encounter **Charles** during our undergraduate years, perhaps because of his transfer from Tufts as a sophomore and because he was in a different course. Our meeting on the 1897-1898 Nicaraguan Canal Survey was the beginning of a life-long friendship. If I should attempt to outline our experiences in that tropical climate, they would be subject to severe editing.

Wilson's letter is somewhat long to be quoted in full, so your secretary will outline its substance. Soon after **Charles'** return from Nicaragua, he married **Florence Thomas** of Quincy, Mass. For several years thereafter he worked for the Treasury Department in Washington. From thence he enlisted in the Navy's Public Works Department, working most-

ly in Boston and the Charlestown Navy Yard. During his 30 years of service at the yard, I saw him on his frequent Boston visits, and we talked of our days in Nicaragua and the proper handling of naval administration problems. He was a fine and most interesting classmate, with a very varied career to review. He was a life member of the American Society of Civil Engineers.

Before we lost our secretary, **Jack Ilsey**, he fortunately transferred custodianship of our Class Fund of \$316.59 to Miss McCormick, Assistant Treasurer of the Alumni Association. Miss McCormick has now retired and your self-appointed Acting Secretary was asked what to do about the money. Without any authority he suggested that the Alumni Fund treasurer take charge of the fund along with what is left of the Lamb Fund. Those who object to this move, please get your negative votes in early, as at 89 the tenure of office of the Acting Secretary of '97 may not be long.—**George R. Wadleigh**, Acting Secretary, 70 Flower Avenue, Hastings-on Hudson, N.Y.

'98

The Alumni Fund issues annually a brochure telling the interesting and important doings of Alumni during the past year. The 1963 issue reads in part as follows: "The Class News section of The Technology Review is noted as the most comprehensive of any alumni publication in the country." In the business section of this issue we note with interest the name of Robert T. Dawes, '26, son of our **Fred Dawes**. Bob moved up during the year to take over as new president of the Hudson (Mass.) National Bank. . . . The December, 1963, issue of The Review shows under the Deceased column, page 55, the name of **Arthur W. Huse**, June 30, 1963. We wrote to the executor for the estate, but he replied that "The late Mr. Huse did not have any family and only one living relative, a nephew, whom he had not seen for many years, living in New York State." In our 30-year Class Book, Arthur was listed as employed in the Maintenance of Way Department of the New York Central Railroad at Elyria.

Much has been written recently about **Roger Babson's** pet study of gravity control and the annual awards for essays on gravity. Those of us who were at the 65th Reunion at Babson Park last June listened to a talk on the subject by George M. Rideout, president of the Gravity Research Foundation at New Boston, N.H. A half page write-up on this same subject appeared in The Boston Sunday Herald on September 8, 1963, and we have been saving it for our class notes. One interesting thought emphasized in the write-up seems to be summed up in the following remarks by Mr. Rideout: "Entries today for these essay contests are pouring in at the rate of one hundred a year and involve stratospheric mathematics, a portion of that science understood by but few of some of the nation's most prominent physicists. The day has finally ar-

rived where these studies on gravity are above Mr. Babson's head and mine. Frankly, I'm happy about that. Progress is very technical and there are so many more people now qualified than there were 15 years ago. This place (New Boston) was important enough in 1958 to bring every aircraft manufacturer here to talk on gravity and to determine whether it was feasible for them to continue with airplanes or go into space. How close we are to a solution on gravity is an open question. There is no answer, but the man who is behind it has foresight and courage—courage enough to risk his name and fortune."

Dr. George R. Harrison, our honorary class member, and dean of the School of Science at M.I.T. since 1942, retired the first of the year. He is being succeeded in this capacity by Dr. Jerome B. Wiesner, science adviser to the late President Kennedy. Dr. Harrison has done outstanding work at M.I.T. in science and has contributed many articles on the subject. He is the author of "Atoms in Action" and a more recent book is "What Man May Be, or The Human Side of Science."—**Frederic A. Jones**, Secretary, 286 Chestnut Hill Avenue, Brighton 35, Mass.; **Edward S. Chapin**, President and Class Agent, 271 Dartmouth Street, Boston 16, Mass.

'99

Charles R. Greenlaw, a special student, lived in Newport, R.I., until he moved to California where he died in Sacramento on November 23, 1963. . . . **Lawrence Addicks, II, VI**, was born March 2, 1878. He was a brilliant student but found time to entertain with the mandolin and banjo clubs in old Huntington Hall in the Rogers Building on Boylston Street. After his graduation, he was a consulting engineer in Douglas, Ariz. A few years ago Lawrence purchased a fine residence on Rock Spring Avenue in Bel Air, Md., where he and Mrs. Addicks lived a quiet life. Lawrence's international reputation as a metallurgist brought requests for his services as a consultant for large firms in New York and elsewhere. A sudden serious illness caused the death of Mrs. Addicks on January 14 and Lawrence's on January 16. . . . **William A. Kinsman, II**, was born in Salem, Mass., on October 17, 1878. Tim, as he was generally called, was a descendant of captains and owners of clipper ships sailing between Salem and China; he owned many splendid specimens of Oriental art. After his graduation he was employed by the International Silver Company of Bridgeport, Conn., until 1914, when he became general manager of Towle Silver-smiths of Newburyport. He became a director of Towle in 1925, president in 1928, chairman of the board in 1950, and honorary chairman on his retirement in 1959. William was former chairman of the Red Cross, treasurer of the Mosely Fund for Social Services for 43 years; a vice-president and trustee of the Newburyport Savings Bank; a member of the vestry of St. Paul's Episcopal Church;

member of the Dalton Club; Tuesday Night Club; Rotary Club; University Club of Boston; and M.I.T. Alumni Association. He lived on High Street in a four-story colonial house of the style favored by the retired captains of Salem and Newburyport. Mr. Kinsman married Edith May Corey, who died November 12, 1963. Mrs. Kinsman was the first president of the Newburyport Garden Club; a member of the League of Women Voters; National Society of Colonial Dames of America and Women's City Club of Boston. The Kinsmans are survived by four daughters: Mrs. Lewis Dexter of Brookline; Mrs. William L. Brookfield of Darien, Conn.; Mrs. Meridith Thoenen of Washington, D.C.; and Mrs. John H. Brooks of Lakeville, Conn.; and 11 grandchildren. William was a member of our class day committee and as president of our class did much to make our reunions a success. **Miles S. Sherrill**, Class Representative, **Hervey J. Skinner**, Class Agent and Treasurer, and **Percy W. Witherell**, Secretary, were honorary pallbearers at the funeral services.

John A. Walls sends greetings from Baltimore. . . . Our 94-year-old classmate, Miss **Harriet Faxon** also sent greetings. Miss Faxon was born in Massachusetts, took a special course at M.I.T., and became secretary of the Metropolitan Museum of Art in New York City. Her handwriting is beautiful. She says: "I am happy in having friends, books and a sense of humor." . . . Our 65th Reunion comes on June 15, 1964. **Hervey Skinner** has kindly accepted the office of president on top of his other duties to help arrange a suitable program. The class is lucky for the time is short and he has the experience and lives near the Institute. Please send to me a list of your past and present interests so that we can prepare a synopsis for our classmates. Any ideas for our program will be appreciated very much.—**Percy W. Witherell**, Secretary, 1162 West Street, Wrentham, Mass.

'00

The following is taken from the Boston Advertiser of December 8, 1963: "Mexicans have dedicated a bronze bust in memory of a Newburyport native, a former Boston newspaperman who was the 'father' of American football in their country. The bronze likeness of **Arthur M. Constantine** was recently unveiled in a niche in a passageway leading from the locker rooms of the stadium used by National University. The occasion was the annual football classic between the Pumas of the National University and the Poli Banco team. While he was a correspondent for Hearst Universal Service, Constantine helped National University students to organize their first American football team in 1928. Energetically he obtained money from public and private sources to buy football gear, hire coaches and finance transportation. The Yankee from Newburyport arranged for Louisiana College to play in Mexico in 1929 for the first international collegiate game, and in 1930 he persuaded

Mississippi College to play at the opening of Venusiano Carranza Park. Among the American football authorities Constantine brought to Mexico as coaches were a future Yale coach, Reggie Root, in 1929; Charlie Marr and Dixie Howell of Alabama in 1936, and Dartmouth's Bud Hoban, 1942.

"Born in Newburyport in 1879, Arthur Constantine was a star in baseball, track and football at Newburyport High. He was graduated from M.I.T. in 1900. He went to work for the Boston Herald in 1902 as a reporter and in 1914 went to Mexico as a war correspondent with the U. S. fleet. He married a Mexican girl, Amanda Moran, in 1915. Constantine returned to the U. S. when the country got into the war. He went back to Mexico in 1920 as correspondent for the New York World and when that paper folded he joined Hearst Universal Service remaining in Mexico. He died in 1959. At that time he was the oldest M.I.T. grad in Mexico. His wife, two daughters, Carlotta and Laura, and son, Arthur, live in Mexico City where in 1957 the football pioneer was awarded a medallion." At M.I.T., Constantine took the course of General Studies. Apparently he did not participate in athletics but was more interested in the Walker Club, L'Avenir and the Walker Club Plays.—**Elbert G. Allen**, Secretary, 11 Richfield Road, West Newton, Mass.

'01

Through the kindness of **Harry Allen** who now resides in Falmouth, I have received further news about **Willard Dow**. He died at the age of 84 in California while visiting his married daughter. He was a former resident of Waban and Wellesley Hills; he was born in Somerville, was graduated from M.I.T. in 1901. He married Blanch E. Lincoln of Malden in 1903. She died in 1953. He was a certified public accountant, entering that field in 1924. Previously he had been associated with Stone & Webster as assistant treasurer of the Management Association Engineering Corporation and at Hog Island during World War I. He then became comptroller of the American International Corporation in New York and of Montgomery Ward in Chicago. During World War II he served as chief project auditor with the U. S. Engineers at the St. Louis ordnance plant, the Sangamon ordnance plant in Springfield, Ill., and the Boston ordnance district. He was treasurer of the Longwood Cricket Club and the Union Boat Club for many years. In addition to his son he leaves two daughters, two grandchildren and one great-grandchild. A memorial service was held in Cohasset.

I also have some further notes on **George A. Hall**, IX, who died in November. He was 83 and a former Congregational minister. He died suddenly at his home in Portsmouth. He was born in New Bedford, was graduated from M.I.T. and received a master's from Harvard. After that he entered the Yale Divinity School and studied also in the Univer-

sities of Berlin and Heidelberg in Germany. He leaves his wife, the former Faith Pomeroy, three sons and six daughters.—**Theodore H. Taft**, Secretary, Box 124, Jaffrey, N.H.

'02

Through letters written to **Dan Patch**, our class agent, we have news from several of our classmates. . . . **Harlen Chapman** in Winter Park, Fla., says he would not be able to stand the rigors of winter in Maine and that Florida just suits him, even in summer. Because of his wife's heart condition they do not travel much by auto; any trips have to be by plane. Their only flight last year was up to Lancaster, S.C., to spend a couple of weeks with their daughter. While there her son, his wife and three youngsters came up from Augusta, Ga., for a week so they had a family reunion. His granddaughter, Helen, has a son born last April, so Harlen now has four great-grandchildren. His son's daughter, Phyllis, is to be married in Hartford, Conn., this coming June, and he hopes to be able to attend the wedding. He remarks that he was recently looking over the '02 Technique and especially the picture of the baseball team of which only three are now left. . . . **Charles F. Gardner**, East Sandwich, Mass., seems to be in good health as judged by his short note. . . . **Carlton B. Allen**, Larchmont, N.Y., writes that life goes on about as usual

with them. They hear occasionally from his daughter and husband who live in Cleveland. Their twins are out of college. The boy is married and has just finished his military duty. The girl is working for the telephone company in Boston. His son and wife get in from Detroit occasionally; the son is the Detroit manager for Reliance Electric and Engineering of Cleveland. Carlton himself is still active in the Peoples Bank for Saving in New Rochelle, being a trustee and serving on a number of committees. The bank just completed its third branch opened February 14.—**Burton G. Philbrick**, Secretary, 18 Ocean Avenue, Salem, Mass.

'03

The 1963 Report from President Stratton has arrived and to an alumnus who graduated at the beginning of the century, the Institute's magnitude, in number of teachers and departments, seems "d'une manière irresistible." . . . An excerpt from an Alumni Report of that early period seems to be of interest here: "The past year of the life of the Institute has been one of waiting and expectation on the part of the Faculty, students and Alumni. Since the resignation of President Pritchett, an entire year has elapsed without the corporation having been able to agree upon an acceptable successor. While it is not to be inferred that the departments have been stationary in the

Deceased

ALBERT G. KEITH, '94, Jan. 21
EDWIN M. PARKER, '94, Sept. 10
THOMAS H. WIGGIN, '95, Jan. 17*
WILLIAM E. HASELTINE, '96, Nov. 23
HENRY W. BALLOU, '97, Dec. 15*
CHARLES L. HAMMOND, '97, Sept. 4*
WILLIAM R. WOOD, '97, Aug. 1
LAWRENCE ADDICKS, '99, Jan. 16*
CHARLES R. GREENLAW, '99, Nov. 23*
WILLIAM A. KINSMAN, '99, Feb. 8*
GEORGE A. HALL, '01, Nov.*
ROBERT F. CRARY, '04, Aug. 12
ERWIN F. BENDER, '05, Jan. 30*
ALFRED H. KELLING, '05, July 28
CARLETON M. EMERSON, '06, Aug. 27
EDGAR C. STEINHARTER, '06, Dec. 10
PERCY E. TILLSON, '06, Feb. 2*
CARL BREWER, '07, March 28, 1963*
SAMUEL A. MARX, '07, Jan. 17*
EDWIN C. RICHARDSON, '07, Dec. 31*
N. LEROY HAMMOND, '08, Nov. 9
ROY S. WATSON, '08, June 16, 1962*
HORACE V. S. TAYLOR, '10, Dec. 20
RAYMOND T. COLE, '11, Jan. 20*
WESLEY T. JONES, '11, Dec. 23
ABRAHAM SHOHAN, '11, Oct., 1962
ROBERT S. THURSTON, '11, Aug. 3
RHYS H. NORTH, '13, Jan. 20
ROBERT W. WEEKS, '13, Jan. 28*
HAMILTON HARLOW, '14, Jan. 21
HOWARD S. WILLIS, '14, Dec. 6
SARKIS M. BAGDOYAN, '15, Jan.
ALLISON C. ROGERS, '15, Dec. 9
AIME COUSINEAU, '16
FRANCIS C. FOOTE, '16, Feb.
GEORGE A. SWEET, '16, Nov. 30
ROBERT M. BLACKALL, '17, Dec. 30
ALAN B. SANGER, '18, Dec. 25*

THOMAS M. LLOYD, '19*
W. KENNETH PIKE, '19, Jan. 25, 1963
V. N. SAMOYLOFF, '19, Dec. 11*
STUART E. BRADFORD, '21, Dec. 1, 1962*
SHERMAN E. NICHOLS, '21, Jan. 25*
LEONCE VAUGHAN, JR., '21, Nov. 30*
WENDELL H. COWLES, '22, July 27
VAINO A. RONKANEN, '22, Dec. 17*
JOHN M. KECK, '23, Jan. 28
HERBERT N. LEISK, '23, Jan. 16*
HAROLD A. NISLEY, '23, Dec. 23*
CHARLES E. SNOW, JR., '23*
ROGER E. VALENTINE, '23, Dec.*
HAWLEY S. YOUNG, '23*
MISS E. J. CULLITON, '24, Jan. 29
HOWARD I. FITZ, '24, Nov. 12
JOHN H. GARDNER, JR., '24, March 9, 1963*
JAMES I. WOOD, '24, Jan. 10
J. HOWARD RAFTERY, '25, Dec. 7*
CHARLES T. ROBBINS, '25, Nov. 5*
WALTER CRAFTS, '26, Oct. 31
MAURICE DAVIER, '27, Jan. 6
WILLIAM H. HASSINGER, JR., '27, Oct. 10
THURSTON HARTWELL, '28, Jan. 6
ALBERT L. EIGENBROT, '29, Jan. 21
JAMES G. BOWEN, '30, Dec.
MRS. E. R. JETTE, '30, Jan.
LOUIS A. GALLINARI, '31, Dec. 13*
ALAN B. BURNS, '32, Dec. 11
JALO KAUPPINEN, '34, Dec. 20*
GEORGE S. BAYS, JR., '35, July 1*
BRONALD J. VASALLE, '38, June 27
PHILIP C. MORGAN, JR., '40, Jan. 16*
GEORGE A. LEWIS, '43
DOMINIC S. ACIERNO, '46, April 5, 1963*
MARTIN GLASBERG, '55, Dec. 2
BERTRAND LIEBENHAUT, '59

*Further information in Class News.

matter of progress or devoid of enthusiasm, the uncertainty of the future could not fail to have its effect on their growth and progress. It is earnestly hoped that the Corporation may soon agree upon a new head for the school in order that there may be no delay in important decisions affecting the future location of the Institute or the general policy to be followed in its development, and so it may promptly take up that vigorous and resolute advance so necessary to maintain its present leadership. The courses may be said to be constantly in process of improvement, and the department of Civil Engineering tends to a simplification of its work. While this department has an equipment quite satisfactory in many respects, in order to maintain its present high position, it should certainly be provided with suitable facilities for cement testing and hydraulic work."

How striking in contrast is the recent news of the completion of a high-rise student complex for 210 young families on the M.I.T. campus. The 16-story tower has a service floor with 15 living floors containing 90 efficiency and 60 one-bedroom apartments. Adjacent to it are four low-rise garden type buildings with two-bedroom apartments for another 60 families. Facilities include a well-baby clinic, children's play area, variety store, coin-operated laundry and storage areas. . . . A \$583,000-face lifting has given the M.I.T. cyclotron, 23-year-old "Elder Statesman" among atom smashers, a new lease on life as a major tool in the nuclear research field. Four basic improvements were made: larger target areas around the cyclotron; better focussing of the beam of fast moving sub-atomic particles; addition of a modern radiochemistry laboratory; and expanded general research laboratories. Modernization was financed by a \$333,000 grant from the U.S. Atomic Energy Commission and the balance from M.I.T. In addition to undergraduates, graduate students, researchers and faculty at M.I.T., users of the facilities include many Boston-area hospitals, companies and industrial research groups.

If you find yourself in the dark because of a power failure, you might invest in a Betty lamp. According to **Leroy Thwing, II**, our Cambridge classmate and author of "Flickering Flames," his book about domestic lighting, "a Betty is a good lamp to have on hand for an emergency. It will burn mineral or salad oil or candle ends, and a roll of cloth or cotton will do for a wick." Prehistoric man relied on a sea-shell holding grease or pitch with a wick of moss for his light, and even in 1750, the best lamps were little better than those. Accordingly, we may wonder how early students solved their calculus problems after sunset.

I have recently received a letter from **Arthur Allen, II**, who is still in pretty good shape but fears the approach of eye cataracts. However, Arthur keeps well-informed, as he demonstrates by sending me the following clipping about **Bill McMenimen, I**, from the Newark, N.J., press: "Mr. and Mrs. William V. McMenimen of 75 Prospect Street, East Orange, will celebrate their 60th wedding anniversary tonight at a dinner at the

Glen Ridge Country Club. Hosts at the dinner will be the couple's two sons and daughters-in-law, Mr. and Mrs. Francis W. McMenimen of Rumson, and Mr. and Mrs. Robert V. McMenimen of Maplewood. The elder McMenimens also have three grandchildren. Mr. and Mrs. McMenimen were married in Boston on January 14, 1904. Shortly thereafter they moved to New Jersey, where they have lived since, except for a brief residence in Marquette, Mich.

"Mr. McMenimen, a native of Cambridge, Mass., was graduated with a civil engineering degree from Massachusetts Institute of Technology in 1903. That year he joined the McAdoo Tunnel Company, an English firm engaged in construction of the Hudson and Manhattan Tubes. A year later, at the age of 24, he was named general superintendent in charge of the tunnel construction work. Mr. McMenimen was subsequently hired by Raymond Concrete Pile Company of New York (now Raymond International) to superintend the construction of an ore-loading dock in Marquette. He later became a Raymond director and vice-president in charge of construction. He was named president of the company in 1946 and served in that capacity until his retirement in 1953. This event was celebrated by 250 members of the Raymond Concrete Pile Company, to honor Bill for outstanding service to the company during the past 40 years, at a testimonial dinner at the Waldorf-Astoria. Bill was presented with a bronze plaque depicting in bas-relief many of the construction projects with which he had been associated in the U.S. and throughout the world.

"From 1939 to through World War II, he served as chairman of the executive committee of Pacific Naval Air Bases, a combination of major contractors who built U.S. bases in the Philippines, Hawaii, Midway, Wake, Guam and other points. For his work in this connection, he was awarded the Meritorious Civilian Service Emblem by the Navy and the annual Award of the Moles, an organization of heavy construction engineers. Outstanding projects in his busy career include: Hudson Tubes; Marquette Docks; New York City subways; Hydro Electric plant, Rochester, N.Y.; Rock Tunnel for Kansas City, Mo.; San Mateo Bridge; Golden Gate Bridge; and San Francisco-Oakland Bridge of California; James River Bridge; Lagunillas Sea Wall; Charles Navy Docks; Barranquilla Port; Buenaventura Port; Havana Harbor; Curacao Drydock and Refineries; Liberia Port. . . ."

With such a long and enviable career, our classmates, as one, extend Bill wishes for an equally long and joyous retirement with his devoted wife, the former Emily Jane Seeds of Philadelphia, Pa., and his loving children and grandchildren. . . . Our Happy Birthday wishes for celebrating an 85th birthday on February 8 went to **Mrs. George H. Hamilton, VIII (Elizabeth L. Williams)** of New Hampshire.—**John J. A. Nolan**, Secretary, 13 Linden Avenue, Somerville, Mass.; **Augustus H. Eustis**, Treasurer, 131 State Street, Boston.

'04

Replies to our notice, mailed in January, are slowly filtering in but there are still many to be heard from. The score at the closing date of these notes (February 14) shows the following who hope to attend: **J. W. and Mrs. Ager**, **L. H. G. and Mrs. Bouscaren**, **W. H. and Mrs. Conant**, **Moise and Mrs. Goldstein**, **Carle R. and Mrs. Hayward**, **A. M. and Mrs. Holcombe**, **Frank and Mrs. Milliken**, **Robert M. and Mrs. Phinney**, **E. F. and Mrs. Rockwood**, **Harry T. and Mrs. Rollins**, **Eugene H. and Mrs. Russell, Jr.**, **Leon and Mrs. Smith**, **Robert and Mrs. Sosman**, **W. B. Boggs**, **Harcourt Bull**, **Harry Kendall**, **Mrs. Stanley McCormick**, **Melvin Schwartz**, **Stan Skowronski**, **Arthur D. Smith**, **Leyland Whipple**. Of the above there are several who are not committed yet, but we are hoping the final decision will be yes. There are others who have not yet replied but we feel quite sure will be among those present. Why not start now to make plans to attend? Please let us know soon, for the number in attendance is an important item in making plans. You could also help by urging friends among our classmates to go. Sometime in April more detailed plans will be sent to all who have indicated possible attendance, so let us know if you want such information. Two replies to our first letter were received with no name attached so let us know if your name is missing from the above list. The central event of the occasion will of course be the reunion dinner which will be either Saturday night June 13 or Sunday, June 14. There may be some of you who for some good reason cannot stay for Alumni Day, June 15, who can plan to attend just the dinner. Think it over. You can help to make this an enjoyable occasion and a happy memory.—**Carle R. Hayward**, Secretary, Room 35-304, M.I.T., Cambridge 39, Mass.; **Eugene H. Russell, Jr.**, Treasurer, 82 Devonshire Street, Boston, Mass.

'05

A letter from **Walter Eichler** answering mine welcoming him into the O.C. says: "You are the first one who ever called me an octogenarian." What a bump of humor. . . . **Herbert S. Bailey, V**, sends me a 'memo' he just ran across in his housecleaning. It is a banner used at Pops Night in 1906 with a big '05 right in the center. It is very infirm. Ruth is putting a backing on it so that I can take it to the next reunion—perhaps Alumni Day, 1964. Herb also sends me a newsletter of the San Bernardino Public Schools, which tells Herb's importance to the community and also prints a picture of him. Because we have not had the pleasure of hob-nobbing with him at a reunion lately I am quoting this tribute in its entirety: "Herbert S. Bailey has been a member of the San Bernardino County Board of Education since 1956 and held the office of board president for two years. He was a

member of the Ontario School Board of Trustees for 12 years. In recognition of his service to the schools of San Bernardino County, the Verdemon Ranch School was re-named the Herbert S. Bailey School last spring. Mr. Bailey was born in Bethlehem, Pa., in 1880, where his father was an instructor in chemistry at Lehigh University. The family moved to Lawrence, Kansas, in 1883. He received his education in the Lawrence Public Schools, his B.A. from Kansas University and his B.S. from the Massachusetts Institute of Technology.

"He has enjoyed a very distinguished career in chemistry, having been employed by the United Zinc and Chemical Company and Armour Packing Company in Kansas; the U.S. Department of Agriculture in Washington, D.C.; the E.I. du Pont de Nemours Company in Delaware; the Southern Cotton Oil Company in Georgia; and, in California, by the Exchange Orange Products Company (Sunkist) in San Dimas and Ontario, where he served as manager for 17 years prior to his retirement in November, 1946. He was an instructor in chemistry at Michigan Agricultural College in Lansing, now Michigan State University, from 1906-07. Always civic-minded, he devoted 40 years to the Boy Scouts of America and was the recipient of scouting's highest honor, the Silver Beaver Award. For 15 years, he was vice-president of the San Bernardino County Civil Service Commission, and was an elder of the Presbyterian Church for 40 years. Mr. Bailey has a son and daughter and eight grandchildren. He resides in Ontario."

I trust those of you who are zealous of '05's reputation are appreciative of **Bob McLean's** work for the Alumni Fund. The last published report gave us a high standing as to total of contributions, but not as to percentage of contributors. I know Bob feels that more of us should get in line, so that our percentages in both respects should be high. Be preparing now for Alumni Day, June 15. Let's be in the foreground numerically, as usual. . . . **Erwin F. Bender, XIII**, died at his home, Chatham, N.J., on January 30, 1964. Notice came to me from Mrs. Bender, who had been keeping me in touch with his illness; also from **Edwin Hadley**, '38, son of our late classmate **Ralph** and Grace, who lives in Chatham, N.J., and speaks highly of Erwin's contribution to the church life of the community. I am quoting from the obituary Edwin sent me: "Erwin F. Bender of 29 Minton Avenue, died Thursday at Garden Terrace Nursing Home of a long illness. He was 82. Born in Germany, Mr. Bender came to the United States at the age of 4 and lived here 25 years. He retired as New York district manager for Kinny Manufacturing Company, makers of pumping equipment, in 1955 after 45 years' service. Mr. Bender was a member of Stanley Congregational Church, the Old Guard of Summit and the Senior Citizens Group of Chatham. He leaves his wife, Mrs. Florence Colyer Bender, and a brother, Hans P. of Chatham."

Edward L. Davis, II, is now residing at 99 Atwood Avenue, Newtonville, Mass. . . . I thought **Andy Fisher** wasn't going

to make this issue, but he has sent me a folder describing Cape Romain, a National Wild Life Refuge in South Carolina. No explanation except this in **Prince Crowell's** handwriting: "One day, two eagles, two deer, sixteen wild turkeys, ducks, etc." that's all. Nothing to tell whether he saw them, shot them or ate them. These Crowells do get around.—**Fred W. Goldthwait**, Secretary-Treasurer, Box 32, Center Sandwich, N.H.; **Gilbert S. Tower**, Assistant Secretary, 35 North Main Street, Cohasset, Mass.

'06

Before dinner at the Alumni Council on January 20, who should stop at my chair for a chat but retired treasurer **Horace Ford**! He was a classmate at Gloucester High and roomed with me during my undergraduate days until he married. Horace was on his way to the head table and after dinner was asked to say a few words; he gave a jovial informal talk, in his inimitable manner, that evoked a lot of laughs and a big hand. It was during my junior year I believe, that Horace and I took a course in Esperanto! . . . In the March notes I reported the death on December 27 of **George Guernsey's** wife. **Elsie** was born in nearby Cochituate but came to Wellesley in early childhood, so was a resident for over 70 years. She was active in church and community affairs: Girl Scouts, Woman's Club, Garden Club, Historical Society, Red Cross, teaching and church choir. They were married in 1916, and besides the three daughters, she leaves eight grandchildren. I have only recently learned that George left for Florida with Mary, one of the daughters, and was staying at the Hamilton Hotel, 307 Park Avenue, in Winter Park. A note of sympathy is being sent to him there and some of you sojourners may have heard from him.

On February 8 a note from **Sherm Chase** brought more sad news. He relayed to me a letter from one of **Percy Tillson's** sons, **Henry C.**, '44, V, S.B., a research chemist with Hercules Powder Company in Wilmington, Del., which reported Percy's sudden death on February 2 as a result of a massive cerebral hemorrhage. **Percy Ethan Tillson, VI, S.B.**, was born January 10, 1885, in Lawrence, Mass. He prepared at Lawrence High but when he entered with us his address was Concord Junction. His thesis was "Tests on 500 KW Turbo Generator." He was a member of the Electrical Engineering Society and was in the Gypsy Dance and the Flower Dance in the 1903 Tech Show "A Scientific King." Except for his stretch in the Navy, Percy spent his entire business life with the Bell Telephone Company of Pennsylvania. For the 1916 history he wrote **Jack Norton**: "Entered employ of the (above) company in 1906 and since engaged in various capacities relative to maintenance and engineering of telephone equipment. At present time have supervision of engineering of central office equipment." Until 1925 he was in the Philadelphia office and then in the Harrisburg office until he retired, in 1950,

from the post of assistant chief engineer, after 43 years of service. Technology's War Record (W.W.I) lists him as follows: "Tillson, P.E. (VI) Lieutenant, U.S.N.R.F.; Entered service 6 April 1917. Communications and Information Duty, Philadelphia Navy Yard, 4th Naval District, 6 April—1 November 1917; Electrical Officer, 'U.S.S. Maine,' Atlantic Fleet, 1 November—1 June 1918; Electrical and Fire Control Duties, 'U.S.S. Florida,' North Sea Service with base at Scapa Flow, 4 July 1918—30 January 1919. Took part in surrender of German High Seas Fleet." In several pages Percy there describes the wild celebration aboard ship (all ships) when the armistice was announced. Later on, with a number of other Tech men, Tillson was present at the surrender of the German Fleet. His description of it is interesting not only from the idea it gives of the spectacle presented, but also because of the light it throws upon the precautions taken against surprise and treachery." The Navy made full use of Percy Tillson's professional competence.

He was a past president of the M.I.T. Club of Philadelphia and had been for some years the honorary secretary or Educational Councillor for the central Pennsylvania area. His memberships were Bell Telephone Pioneers; Engineers Society of Pennsylvania; Keystoneians; Executives Club; Torch Club and American Legion Post 27. Surviving are two sons, **George F. of Yardley, Pa.**, and **Henry C.**, and six grandchildren. We are indebted to Henry for some of the above and to him a letter of sympathy has been sent for the Tillson family. Through the years Percy has been one of our most loyal classmates, attending reunions and Alumni Days, in later years with **Annetta**. During the early years, when **Angelo Heywood** was class secretary, he was one of the "Branch Secretaries" and since has been a good correspondent. Percy wasn't the kind to like loafing and wrote me in 1959 that he was "still keeping out of mischief, at his job with the Pennsylvania General State Authority." However, in April of that year he and **Annetta** began to travel: first a trip around the world. He said he had always been told the earth was round so he had decided to test it. By May they had reached Bangkok and he assured me he was "still going strong and about half way around." In the January, 1961 notes I quoted from a postcard from the Barbados: "At it again! This time island hopping. This is our eighth with three more to go. Each island is different and all very much worth while. Best regards to all." Although his professional career might be considered a single track, Percy's interests and activities were broad and well-rounded, as testified by Henry who wrote: "Dad had been in good health recently and was making a good adjustment to Mother's death. He had kept up his usual activity in the clubs and groups he belonged to in Harrisburg." Percy and **Annette** will be much missed.

In a recent letter from **Bob Cushman, II**, he comments that the class notes bring feelings of sadness though they are tempered with some very happy memories,

referring to classmates **Louis Tripp** and **Fred Bentley** and **Bill Gaylord** and **Herb Ball**, all now deceased, when they roomed and studied together in those days of long ago, and more recently saw each other in Washington, New York, etc. It isn't often that the secretary of another class stimulates an '06 man to dig down and send me a check, but it happened recently, and from another came his check for the fifth consecutive year. If you get to the New York World's Fair why not visit New England too (for rest and relaxation) and join us at Alumni Day which comes on Monday, June 15 this year. Anyway, send a card.—**Edward B. Rowe**, Secretary-Treasurer, 11 Cushing Road, Wellesley Hills, Mass.

'07

An appeal from Class Treasurer **Phil Walker** went to all the members of the class at the end of January for donations to help your secretary carry on correspondence, pay postage, and get information for the Class News. By the middle of February, replies had been received from over half the class, and the "Kitty" was fattened to \$300. Thanks to all the members who contributed, and a reminder to the others that the stamped envelopes you received can be used to mail your donation or reply. . . . The death of **Sam Marx** means that we have lost an active and well-known member of '07. He attended all our reunions through our 50th, with only one exception, the 20th at East Bay Lodge. Sam showed a great deal of interest in the class and could always be counted on for contributions and for suggestions regarding our activities. He died at his home at the Hotel Westbury, Madison Avenue & 69th Street, New York, on January 17, 1964, due to pneumonia. His age was 78. Burial, as he had wished, was in Natchez, Miss., where he was born and where his parents were buried.

John Frank and **Sam Marx** had been very close friends almost since birth. They were both born in Natchez, went to school together there, were roommates at Exeter and at M.I.T. With the exception of Sam's three years of study after graduation at the Beaux Arts in France, they lived near each other in Chicago until Sam moved to New York in October, 1962. Architecturally, Sam was perhaps best known for the Pump Room in Chicago's Ambassador East Hotel and the Cotillion Room of the Hotel Pierre, New York. He designed many fine residences in Chicago, St. Louis, and Los Angeles, some of them costing \$500,000 or more. Other well-known works are the Delgado Museum of Art, New Orleans; Edward G. Robinson Art Gallery, Beverly Hills, Calif.; and May Company department stores in Los Angeles, Denver, and St. Louis. Sam was a member of the Advisory Council of the Museum of Modern Art of New York City. He was vice-president and treasurer of the Chicago Chapter of the American Institute of Architects, a founder of Roosevelt University in Chicago, and a member of the

Advisory Committee of the Illinois Institute of Technology. Sam and his wife had one of the great collections of modern French painting and made many important gifts to the Art Institute in Chicago. One half of his million dollar estate was willed to this institute. His hobby was painting, water color, and guache. Examples of his work have been exhibited in several art museums. A number of the class wrote letters of sympathy to Mrs. Marx, including your secretary, at the time of Sam's death.

Parker Dodge, II, sent me a copy of a letter telling of the death of **Edwin C. Richardson, II**, in Redlands, Calif., on December 31, 1963. Rich and Parker did their thesis together and kept in touch with each other by mail for over 50 years, although Rich never came East after graduation. I wrote to his brother John, and he sent me a clipping from the Norton Air Force Newspaper. At the outbreak of World War I, Ed enlisted in the American Army in Montreal, Canada, and for 18 months fought with the 146th Infantry of Ohio in France. After the armistice, he returned to Redlands and worked for Gladding, McBean and Company, makers of clay products. Over the years he spent much time at both Redlands and Montreal, Canada. While in Montreal, he established three of his own companies. These all failed during the following years of depression. When World War II started, Ed accepted a job with the Canadian Government in Montreal as a war plant representative. When the war ended, he returned to Redlands to retire in 1952, but instead he accepted employment with S.B.A.M.A., where he worked in the Directorate of Maintenance for 10 years and then in the Directorate of Material Management, Industrial Engineering Branch. Ed married Suzette Douglas of Montreal in 1933. She died in 1954. They had no children. He was considering retiring in 1963, but became seriously ill of cancer and passed away suddenly.

Chick Eaton, II, is in Florida for the winter. His address is P.O. Box 516, Craig, Fla. . . . **Bill Otis, I**, is also living at his winter Florida address. . . . **Tucky Noyes, I**, writes that he is in fine shape physically and can walk two blocks at a stretch. He prefers, however, to use his car to get around and is quite busy with his "Coat of Arms" business. . . . **Bob Albro, I**, used to be a strong competitor of Tucky's in the hurdle races at Tech. Today he has great difficulty in even walking but gets around indoors with the help of two canes. . . . **Wheat-on Griffin, I**, enclosed a nice note with his check for dues. For the last three years he has not been out of the house. Why not send him a card? . . . **Frederick Bachman, XIII**, wrote from his winter address at the Casements, Ormand Beach, Fla. After leaving M.I.T., Fred worked in the U.S. Patent Office in Washington and studied law. He was admitted to the District of Columbia bar three years later. He then went to work in the legal department of Edison Light at West Orange, N.J., where he had many interesting personal contacts with Thomas A. Edison. In 1918, he went to New

York as an associate and later as a partner in the firm of Kenyon. Several years ago Fred retired from active practice, because of poor health, but he still acts as counsel to his firm. Fred married and has a married daughter in Minnesota with three children. Another daughter died while attending Smith College. I wrote to Fred, congratulating him for attaining "four score" this coming June 10. He took Naval Architecture in Course XIII. I am sure he would like to hear from some of his former associates. Use the address on your class list.

Paul Cumings, IV, asked his wife to write to me, as he had a cataract operation in early December which, though successful, has not restored his eyesight fully. They plan to leave the middle of February for Italy and then will visit Palma de Mallorca and Spain from March 17 until late May. The front page of the John Hancock News Weekly for July 3, 1963, tells of his retirement as of July 1. I quote in part: "Paul L. Cumings joined the John Hancock Company as construction consultant in 1945. His duties then were to set up the construction procedures and to supervise the erection of the company's new Home Office Building in Boston. He also had the Hancock Village, a garden apartment development in the West Roxbury-Brookline area included in these duties. After the completion of these two projects, Paul continued with the company, assisting the general and district agencies in the setting up of new field offices throughout the county. He also developed and maintained the company's exhibits on the 26th floor of the Berkeley Street building."

Stanley Wires, IV, still goes to Boston on business three days per week but doesn't get out much in the evenings, which is the reason he does not come to our class dinners at the Faculty Club. . . . **Fred Dempwolf, IV**, has been sick with the shingles for nearly six months, which partially paralyzed his left leg. He is in good health now but has given up his architectural practice, and for a pastime is trying to paint in oils. Fred and Sam Marx were very close friends, and he feels Sam's death keenly. . . . **Tony Arnold, II**, writes from his home address that he is still physically able to work four hours a day, taking care of flowers and shrubs during eight months of the year in his garden. Last fall he visited in Maine, New Hampshire, Massachusetts, and Vermont. He has been in New York City this winter and is about to leave for a month's vacation in Florida. . . . **Jim Garratt, I**, wrote me on January 29, his 78th birthday. Last September 30 was his 50th wedding anniversary, and his three children and their families gave him a very enjoyable family party. Jim has six grandchildren living near him and two more in Houston, Texas. He has no immediate ideas of retirement and is "still trying to get more water for Newark's supply and to make it run up hill. So am busier than ever." Recently he went skiing with two of his grandchildren.

I would like to hear from more of the class who have great-grandchildren. **Bob**

Rand writes me he has two. Brief notes with many enclosing checks were received from Phelps Swett, Ed Temple, J. M. Barker, Herbert Eisenhart, Otis Fales, Albert Mansfield, Ralph Randall, Albert Greene, William Wilson, Hugh Pastoriza, and Tom Gould. Will save more news for the next issue of The Review. . . . Word has just been received from the family of **Carl Brewer, II**, that he died March 28, 1963.—**Philip B. Walker**, Secretary and Treasurer, 18 Summit Street, Whitinsville, Mass.; **Gardner S. Gould**, Assistant Secretary, 409 Highland Street, Newtonville, Mass.

'08

Jimmie Burch has been elected chairman of the board of the Dubuque Bank and Trust Company, after 28 years as president. . . . The following item, from "Standards Engineering" will be of interest: "**Harold Smith Osborne**, Mayor of Montclair, N.J., was elected Honorary Life Fellow in recognition of outstanding contributions to standardization throughout his long professional career. He received the first engineering doctorate granted by M.I.T. in 1910, and subsequently, served with the Bell System for 42 years, becoming chief engineer in 1943. Since 1952 he has been a consultant on various South American projects. Dr. Osborne has been the recipient of many awards in engineering and in municipal planning, and has been a member and officer of numerous standardization bodies, including the I.E.C. and the Joint Committee on Standards of the Department of Commerce and the A.S.A. He is a past-president of the A.I.E.E. and a fellow of the I.E.E.E. In addition to his distinctions in technical fields, Dr. Osborne has been active in civic affairs since 1930."

How about the Alumni Fund? To those who have already given, many thanks, and to those who haven't done so, please do, and soon. To reach this year's quota, it's up to everyone to give. Be generous. We are sorry to report the death of **Roy S. Watson** of Milwaukee, Wis., as of June 16, 1962. H.A.S.N.—**H. Leston Carter**, Secretary, 14 Roslyn Road, Waban 68, Mass.; **Joseph W. Wattles**, Treasurer, 26 Bullard Road, Weston 93, Mass.

'09

Art Shaw, while in Florida, received a letter from **Weston Radford**, an excerpt of which is as follows: "Your Alumni Fund letter has been forwarded to me down here in Florida. During the past year we decided to move from Oshkosh, Wis., to the warmer climate of this locality, so in October we packed up bag and baggage, and here we are. We have rented an apartment here on the ocean and intend to live here permanently. We will, of course, go up north in the summer and spend some time with our sons and their families. And we also hope that they will come down to see us, especially

in the winter." Weston's new address is: 3800 Galt Ocean Drive, Fort Lauderdale, Florida 33308. . . . We received a letter from Carl H. Lovejoy, '10, who is in Florida, as follows: "As a member of Class 1910 the name **Risdale Ellis** rang a bell in my memory when I encountered it in the enclosed article from the New Yorker of January 11. Thought it would be of interest to you. It is quite a long article so I am only sending the title page and one other, as the titles ties in with the reference to Risdale Ellis. I have been retired since 1956 and living in Florida and enjoy it." The article in question appeared in "Annals of Business" in which it told of a chemical engineer who had worked for some time in the space suit research laboratories of the B. F. Goodrich Company and then had accepted a position with a competitor who had just been awarded a lucrative contract for the Apollo project, in competition with Goodrich. A lawsuit was brought against both the engineer and the competing company. Both sides used quotations from Risdale Ellis' textbook, "Trade Secrets." The defendants quoted a passage which stated that until the employee had not lived up to his contract, the former employer could not take action. The plaintiffs found a passage in the same text which stated that "where a confidential employee left to enter defendant's employment, an inference can be drawn . . . that the latter employment was stimulated by a desire by the defendant to learn plaintiff's secrets." Apparently Risdale contradicted himself. The judge ruled that he could not issue an injunction against disclosure of trade secrets until such disclosure had occurred.

We have learned that **Tom Desmond** had recently published three articles in current magazines, as follows: "This Business of Government—Whose Responsibility?" in the January 1964 issue of "Monitor," the official publication of Associated Industries of New York State, Inc.; "Lessons from Yesterday's Teachers," in the January-February, 1964, issue of the Journal of the National Retired Teachers Association; and "Live Every Day," in the March, 1964, issue of Popular Medicine Magazine. . . . The 55th Reunion Committee is preparing the program and notices of the coming reunion which is to be held at the New Ocean House, Swampscott, Mass., on Sunday, June 14, followed by Alumni Day, June 15. We hope that a large number will attend and enjoy meeting old classmates.—**Chester L. Dawes**, Secretary, Pierce Hall, Harvard University, Cambridge 38, Mass.; Assistant Secretaries: **George E. Wallis**, Wenham, Mass.; **Francis M. Loud**, 351 Commercial Street, Weymouth 88, Mass.

'10

On January 22 I had a very pleasant time at the New York luncheon at the Chemists' Club with **Carroll Benton**, **George Magee** and **Jim Tripp**. . . . **George R. Lord** of Clearwater, Fla., writes: "Thanks so much for your letter of October 1 and the list of classmates still living.

I recognize the names of quite a few, but as I was a transfer student in the junior year, there were many I never got to know unless they were in my chemistry course, the glee club or basketball, which were my outside activities. **Larry Hemmenway** I never knew until years later. We became neighbors in Pelham, N.Y. **George Humphrey** and I came to Tech from Marietta (Ohio) College and **Bill Hargraves** and I were on the same basketball team. Many others I knew casually rather than intimately. As to my 'career,' it has been pleasant but hardly noteworthy. Shortly after leaving Tech I was employed by the Magnolia Petroleum Company of Texas, then a young organization with a promising future. I was most fortunate in being able to develop rapidly in the manufacturing end of the business and during the war I was located at Beaumont, Texas, as assistant superintendent of refinery operations. I married and two children were born to us in Texas. In 1919, another young and growing organization, Sinclair Oil, made me an attractive offer to go to Chicago as superintendent of their East Chicago Plant. In 1923 I was transferred to New York, where I was located until I retired in 1952—at that time as vice-president of manufacturing for the Sinclair Oil Corporation, living at Pelham, N.Y. Since then I have been living in Belleair—actually a residential section of Clearwater, Fla., but a separate town. As the years pass, I have reduced my activities to a point where now I am a glorified yardman and errand boy, but with an acre of ground and a house to keep up I find it keeps me quite busy. My wife and I are both well and have been most fortunate as to health and comfort. As we like the climate so well, we seldom travel except to visit relatives in Texas or the North where our children and their families live. My memories of Tech are centered around Boylston Street—the Brunswick "Chapel," the fog on the Common, Beacon Hill where I lived, the "Pop" concerts, T-wharf and the Old Howard Theater and Castle Square. The New Tech is a stranger and I am awed by its magnificence. I am afraid I wouldn't feel at home there. It's too big and too modern. The Old Tech was good enough for me and was good to me, and I am grateful. So, I am afraid very few in your list would remember me, but since you asked for it, this is, briefly, my story since 1910."

Hiram E. Beebe of Los Angeles writes: "Since the very fine meeting of the 1910's engineered by **Babcock** at Commencement 1960, we had the pleasure of meeting with **Fred Dewey** at the dinner at the Waldorf in May—a most colorful occasion which made me proud of being a Tech man. After visiting my nephew Ernest C. Beebe in Bronxville, I had a very pleasant day in Boston. The three-story brownstone front where we students roomed on St. James Avenue is one long impressive insurance building. But the library on Copley Square looks the same; I always enjoyed going there to see Sargent's "Prophets" and the Abbey paintings. At M.I.T. I had a very interesting session with Professors Holden and Cooke on my present obsession—treating freshmen like juniors and putting them in

research their first year. The next three days were at Middlebury, Vt., where son Edward was transferred in February from his 10 years at Marshfield, Wis., in the Weyerhaeuser plant. He is in charge of new additions to the veneer and plywood plant at Hancock. We drove over the mountains between the towns—four inches of snow—a novelty after 20 years in Hollywood, Calif., but very mild after the previous 50 in South Dakota. Talking about fifties, Mrs. Beebe and I had our 50th in July, but the celebration is postponed until July, 1964, when Ed's family will come from Middlebury with four children and meet us and Daughter Beatrice Meierstein and five from Sioux City, Iowa. After the historic and scenic sights we plan to take in the World's Fair in New York City. New York City reminds me of **Hemmenway's** generous gifts to us in 1960 of "When M.I.T. was Boston Tech" and his plan to get a class in "M.I.T. History" required for all freshmen. My wife and I banded birds in South Dakota for the National Biological Survey so were warmly welcomed here by the Audubon Society. For two years I was chairman of the Tucker Bird Sanctuary in Modjeska Canyon during which time Crawford H. Greenewalt, '22, photographed the Hummingbird pictures which appear in his beautiful book. Each Easter the past four years we have had charge of getting the thousands of lilies which you will see in the newspaper and television pictures of the Sunrise Service in Hollywood Bowl. Hundreds help free of charge. Frankly, I often feel that I have not repaid in achievements the training given at Tech."—**Herbert S. Cleverdon**, Secretary, 120 Tremont Street, Boston 8.

'11

At the January meeting of the Alumni Council, resolutions were passed on the death of **Emmons J. Whitcomb**. They closed with the following paragraphs. "Emmons Whitcomb had a big spot in his heart for the Institute and was ever willing to do his best for M.I.T. He served as a member of the Alumni Council from 1929 until his death, representing the Clubs of Nashville, New York and Toledo; and since 1959 was the representative of his Class of 1911. Also, he was on the Nominations Committee from 1931 through 1934, and on the Committee to Nominate Representatives of the Local Associations from 1940 through 1947. For many years following World War II, he chaired a Committee on Transportation each Alumni Day. . . . As we pause to pay tribute to Emmons J. Whitcomb, we realize that with his passing M.I.T. has lost a true friend and devoted alumnus; the Class of 1911 has lost a faithful worker; and the Alumni Council has lost one of its most loyal members." . . . We have just learned of the death on January 20, 1963, of **Raymond T. Cole, II**, in Newcastle, Maine. He was born in South Portland, Maine, November 1, 1887. He joined us in our senior year after receiving a degree from the University of Maine. After we were gradu-

ated he taught at Worcester Academy for four years where he received his mechanical engineering degree. He did engineering work in Connecticut and Massachusetts until 1931, when he created a business designing and making "Seaside Toys and Novelties" for gift shops in Newcastle, Maine. His son took over the business on his retirement in 1954. He was a member of Hiram Lodge of Masons in South Portland, the Royal Arch Chapter in Worcester, and the Second Congregational Church of Newcastle. He is survived by his wife, Isa, a son George, a sister and brother, and five grandchildren.

Oliver D. Powell, Special Administrative Assistant U.S.M.C. Air Station, El Toro, Calif., reports he expects to be discharged from the Marine Corps this spring. What was intended as a temporary appointment in 1950 has continued for 13 years. Oliver does not intend to go into retirement and is "confident of finding plenty to keep him well occupied in Southern California." . . . Class Agent **O. W. Stewart** wishes to express his appreciation of the support the class is giving to the 1964 Alumni Fund. Although the total of contributions from 1911 is up slightly, the number of contributors is still below last year. To meet the 1964 goal of \$1,000,000 all classes are stepping up their efforts and we need increased support to maintain our lead.

New addresses: **Clarence W. Dow**, 261 Oakridge Avenue, Rochester, N.Y.; **Theodore J. Lafreniere**, 418 Pine Street, Montreal 18, P.Q., Canada; **Samuel M. Schmidt**, 1171 Towne Street, Cincinnati, Ohio 45216; **Warren J. Simonds**, 172 South Main Street, Orange, Mass.—**John A. Herlihy**, Treasurer and Acting Secretary, 588 Riverside Avenue, Medford, Mass. 02155.

'12

Wilbur Taylor Roberts passed away in South Chatham last November. For the last five years he has been confined to a nursing home in very feeble condition. His wife Dorothy survives him. She is living at Forest Beach Road, South Chatham. . . . I had a pleasant lunch with **John Noyes** last week. He was in Boston because his sister had recently died and he is helping settle up the estate. The Noyes hope to be off on a trip later this spring. . . . **Jim Cook** who hoped to be up and about the middle of December after recovery from his broken hip, was up and about two weeks ago.

Jesse Hakes writes that they were in Europe a month and a-half last spring attending the International Flower Show at Hamburg, and in Amsterdam and England for a conducted tour of farms, gardens and nurseries. The trip was under the auspices of the American and Royal Horticultural Societies to which they both belong. Mrs. Shepard and I were at the Chelsea Flower Show the same week but we obviously did not meet each other. They are sailing on January 11 on the 'Kungholm,' the Swedish American Line, for a world cruise. In Africa they

will leave the ship to cover Nairobi and Treetops then back to Arden to join the ship. A five-day trip will follow in India, then Singapore, Bangkok, Rangoon, Japan, Los Angeles and Mexico City. Sounds like a good trip to me.—**Frederick J. Shepard, Jr.**, Secretary, 31 Chestnut Street, Boston 8, Mass.; **John Noyes**, Assistant Secretary, 3326 Shorecrest Drive, Dallas 36, Texas.

'13

Once again, we are looking forward to M.I.T. Alumni Day in early June. Are you making plans to attend? Many of us who reside in Massachusetts will be present, so you of other states why don't you include the Alumni Day in your itinerary for June? We are starting on the second half of the century drive. **George Richter** writes and we quote: "Capen scores again and mightily. A big job, well done and congratulations. The Geographic Register serves a fine purpose and will become thumb-worn as the months go by. The years bring changes but Time is not necessarily a cruel agency. It does march relentlessly and we sometimes falter a bit in our attempt to keep our place in line. But there are rewarding aspects and a refinement of concepts that brings out the essence and a flavor that we miss in our younger years. Life becomes four dimensional, or should. There is length as measured by years; there is breadth as measured by events; depth becomes a measure of knowledge and understanding; and finally, if we are fortunate, there is wisdom that comes with age and experience. Blessed is the man who attains the fourth periphery. To jam the wheels of progress is unwise and futile. We must keep our places in the moving world. Not long ago I tried to express the futility of 'Youth Recapture' in a few simple lines which I enclose. A reading by some may produce a melancholic effect but if viewed rightly it should lend optimism, not resignation. How does it strike you? 'Sometimes I wish that I could call a stop/ And watch the years pass by this spot/ Then I would wave a kerchief to a friend/ And wonder what awaits him at the bend/ Of that long road that meets the ending sky./ And yet perhaps if such a wish could be/ If I desert a part of me/ With hope to join a later squad/ I wonder if the hope would prove a fraud./ I'd find it hard to hold the younger stride/ I might lose pride and beg or steal a ride/ Or stumble on as youth goes marching by/ In silent laughter or with lips that lie./ Far better that I keep my given place/ Continue with my comrades in this race/ And when the spurt comes hard, to coast a bit/ But keep on going till it's time to quit.' . . . Now, I suppose you are on your way once more planning the 60th. May it be lively and rewarding."

Yes, **George Richter's** philosophy is very realistic and as a paper chemist and authority on its manufacture, **George**, you are fast approaching the standard set by **Henry Longfellow**. . . . **Geof Rollason** penned a short note stating that he and **Marg** were looking forward to the

Capens' next visit to Jersey. Also, he had received the Geographic Register, but noted that **Lammy** was listed as living in Connecticut. This address was given to us as his forwarding address while he was in this country. He has since informed us that he was returning to Australia, and probably reached home by March or possibly earlier. The Capens expected to be in New York City for several days as their older daughter Janet was married to Raymond Theodore Ruder on March 7; the Ruders will be "at home" after April 1 at 40 Park Avenue, N.Y.C. . . . **Gordon Howie** has written thanking us for the Register, and we quote in part: "Ethel and I still talk about the grand time at our 50th Reunion at Oyster Harbors and appreciate the amount of work which you and the rest of the committee did to make it possible." . . . **Karl Briel** has finally broken through the barrier and we quote: "The Geographic Register of Class of 1913 was a wonderful idea, especially to those of us, who although former long-time residents of Massachusetts, then within earshot of goings on at M.I.T., have retired to warmer climates. California take note, for I see that we have topped them by one member, and for which I arbitrarily take credit. In the November Class News you mentioned copies of **Gene MacDonald's** speech at the Commencement Luncheon and a list of the names of classmates attending the 50th Reunion last June. If copies are still available I would appreciate same. Mention of the reunion brings me to the main point of this note, for by now you must be wondering why I was not heard from at the time. It takes a bit of explaining which has been hard to get around to since June 7. For the past two years or so we had been staying here the year round, mainly because previous trips north had proven to be not good for my wife. So when the reunion came up, I gave up the idea of the trip. However, the future looked bright for both of us, and it came as a great shock when my dear wife **Blanche** passed away suddenly in the early morning of June 7 of a heart attack. This on the day when we would have been arriving at the Cape. . . . I gather that **Lester Gustin** has taken up oil painting, which I started on my own about two years ago. In September 1962, I signed up with Famous Artists School, and up to last June was well along to completing the course in half time, but of course slowed up, since June, in this empty house. However, such a hobby, and this wonderful year round semi-tropical climate in south Florida is a great help. I will be happy to greet any classmates who land anywhere near this neighborhood. With best wishes."

Karl, we of 1913 all offer our most heartfelt sympathy on your great loss. . . . **Charlotte Sage** as usual keeps in touch: "Happy New Year to you both. As for reunion, I have no wishes, for I do not expect to attend. I 'shot my bolt' as they say for the 50th, but it was hard to do, and if it hadn't been for that kind **Fred Kennedy** needing a ride back, it would have been worse. I was glad to have the Lemaire girl too. I am driving steadily,

but so many are not that I wonder, for an in-between reunion, if a handy to Cambridge place wouldn't be wise? Best of luck, whatever and which." We appreciate your advice, Charlotte and will be looking forward to seeing you at the next. The May issue will show the result of our poll of when, where and the number who will attend an interim reunion.

There are many things that we resort to in order to obtain news. This time an error in the Register brought a letter from **Lindsley F. Hall**: "I note that the current 'Review' gives my 'new abode' as 1925 S.W. Main Street, Portland 5, Ore. This was my address when I retired from my work at the Metropolitan Museum in 1949. In early 1960, my wife died, and in about two months I entered a retirement home at the above address. The address which you and the other M.I.T. Officers have been using, Portland 12, Ore., now has the zip-code number 97232. The old zone 12 was divided, hence our new zone, 32. I should appreciate a correction, perhaps in the Class News, where the error occurred." Yes, Lindsley, we were very glad to hear from you, and your address has been changed as you requested. Our apologies for our error. . . . January 28 was a very sorrowful day for all of us of 1913. On that date our very dear and loyal classmate friend, **Bob Weeks**, after a firm struggle of several months, finally departed from this world. Thanks to Dorothy (Sister) Weeks, '22, and **Bob Tullar**, we were informed of Bob's death at the Cotter Convalescent Home in West Chester, Pa. His funeral services were held at the Holy Trinity Church, West Chester. Bob had lived a very full and industrious life, both in engineering and as community service. He founded the Wind Turbine Company in West Chester in 1932 and served as president until his retirement in 1960. He was a member of the honorary society, Osiris, the Delta Epsilon Fraternity, also past-president of the M.I.T. Club of Philadelphia. Further, he was a past president of the West Chester Chamber of Commerce, a member of West Chester Rotary Club, and former vestryman of the Holy Trinity Church. Robert Weeks is survived by his delightful wife, Dorothea (née Bauer); two daughters, Mrs. Philip W. Guild and Mrs. James B. Pirlle, and two sisters, Dorothy W. Weeks and Mrs. Lawrence C. Staples. Bob will be missed by everyone who knew him. A wonderful loyal '13er, he always co-operated with your reunion committees and was always present unless illness prevented his attendance; even then he made his presence felt by letter and telegrams.

George Wallace and his nice wife, Alice, have presented \$500,000 in cash to the mayor of Fitchburg for the construction of a new library. Sister Alice has been chairman of the trustees for many years. This, by the way, is the largest cash gift ever received in the history of Fitchburg. The present public library was presented by Rodney Wallace 80 years ago. George's comment: "It seems strange to tear down something your grandfather built, but he would have done the same thing." . . . Another classmate makes headline news in a photo of a

group of engineers witnessing the signing of a proclamation by Governor Peabody designating the week of February 18 as "Engineers' Week." **John H. Hession**, Class President, is also president of the Engineering Societies of New England. . . . Also, appearing in the Boston Herald is a photo and caption of Patricia Severance as a member of a skating group from the Boston Skating Club appearing in a tour of skating and hockey stars at Greater Boston Skating Rinks. Yes, the star shown is the charming daughter of Donald Severance, '38, Executive Vice-president of M.I.T. Alumni Association. . . . Until the May Issue, carry on.—**George Philip Capen**, Secretary and Treasurer, 60 Everett Street, Canton, Mass.

'14

Ray Dinsmore reports this month's news. **Harold Richmond** is away for two or three weeks so he has given me the opportunity to write a few lines about the 50th Reunion. This also allows me to sneak in a few comments about Rich which he would censor if he saw them first. No one could be more loyal or work harder for the class than he does and has done ever since the beginning. He knows and is truly interested in more class members than anyone else I know unless it be our President **Charlie Fiske**. My job for the reunion would be ineffective without the advantage of Rich's background and willing support. Never critical but full of helpful suggestions and generous in his praise, he is a wonderful teammate. The Richmond family has "made it unanimous," by the agreement of Mrs. (Florence) Richmond to be chairman of the Ladies' Committee for the reunion. She is very busy, and this is a real sacrifice of her meager spare time. She will be ably assisted by Mrs. (Alma) Hamilton, Mrs. (Mildred) Morrison, and Mrs. (Marion) Wilkins. At this writing I have just welcomed to my own committee **Leicester Hamilton**, **Lin Faunce**, **Art Peaslee** and **Harold Wilkins**. With all these devoted people working in your behalf, you are assured of a delightful time with congenial companions.

One of the pleasures of my task is to receive notes and sometimes letters from many classmates whom I have not seen for a long time. A few of their comments may be interesting to the class. **H. R. Aldrich** comments humorously on early days at Tech, reunions in general and the fact that his course, Mining Engineering, was yanked out from under him after graduation. He says: "Be all this as it may, I notice one coursemate, **Clyde Ross**, has registered, so I have cast the die and D. V., plan to put in an appearance with my wife Helen." . . . **Rucker Bristow** says he has formed a new company, Sunny Orange of Canada, and has taken on other interests. He comments: "From the above you gather that I am about as far from retiring as if I were just graduating from M.I.T." . . . **L. W. Burnham** fears he cannot attend but "will be with you in spirit. All the best." . . . **Din-**

ny Chatfield sent his good wishes for the reunion program. He and his wife will be there. . . . **Skip Dawson** writes that he will leave February 25 for Southern Europe and expects to return the middle of May in plenty of time for the reunion. . . . **Lin Faunce** wrote: "have been looking forward to this ever since our last meeting at Sturbridge, Mass."

Ted Gazarian wrote: "I finally decided to chase the sun and thus we moved to Ormond Beach for the winter and spring as the first step in search of a permanent base of operation." . . . Last week we enjoyed a very pleasant visit from Mary and **Leigh Hall** of Concord, N.H., who were on their way to Sarasota and discussed the reunion." . . . **Egbert Hadley** tells me he is serving his 19th year (and now probably 20th) as chairman of the board of trustees of Middlebury College. For a while he thought that the Commencement Day exercises at Middlebury would conflict with reunion plans, but happily has found that they will not. See you then, Ed. . . . **O. C. Hall** says he may bring his daughter with him to the reunion if she doesn't leave for Europe before that time.

. . . **Leigh Hall** says: "sounds good Ray and 'the Good Lord willing' I'll be there!" . . . **A. W. Johnson** had planned to stay in Naples, Fla., through June but he and his wife may return in time for the reunion. We hope so. . . . **Dale McNary** wrote in November that he hoped to get to the reunion. He and his wife were leaving for Tucson for the winter. . . . **Paul Owen** wrote: "Last summer we stopped over night in Charter House Motels in Weston, Mass., and Portland, Maine. I hope it is the same chain (it is)—very nice. From Portland we called on both **Charlie Fiske** and **Dean Fales**." . . . **Frank Somerby**: "We live in Florida now but will surely be on hand for part of the festivities and to see old friends." . . . **Bob Townend** retired from Allied Chemical in 1961 but continues his job of many years as Honorary Secretary for his district. Bob has had a long and interesting research career and picked up a Ph.D. along the way. . . . Rich has reported on **Alden Waitt's** activities. He has written me an interesting letter also, which I shall not quote but may say he has a lively interest in the reunion and is looking forward to attending. . . . A number of our class have expressed doubt that they can attend because of poor health. Some of these are: C. P. Davis, G. C. Derry, E. N. Frank, A. P. Kitchen, and Charles H. Wilkins. We wish them well and hope they can be with us at least for part of the time.—**Ray P. Dinsmore**, Reunion Chairman, 9 Overwood Road, Akron 13, Ohio; **H. B. Richmond**, Secretary, 100 Memorial Drive, Cambridge 42, Mass.; **Charles P. Fiske**, President, Cold Spring Farm, Bath, Maine; **H. A. Affel**, Assistant Secretary and Class Agent, R.F.D. 2, Oakland, Maine.

'16

Our go-go President **Ralph Fletcher**, just off to skiing again in Davos, Switzerland, February 1 (how about that?), starts

us off with a reminder: "As we get nearer to the reunion dates and classmates are beginning to firm up their plans, the indications are that we are again going to have a wonderful turnout. We should mention that we more than likely will be able to arrange transportation from Boston to the Cape on Friday for anyone who would like it, and if we know far enough in advance, we might be able to arrange for assistance from other points if a classmate in the particular area is driving to the Cape. Also, we will be able to help with transportation back to Boston on Sunday and may be able to help on return transportation to other points. Give us the chance to help. Write early enough so that we can explore all the possibilities. We will plan to meet those flying to Hyannis Airport and tote them to Chatham Bars Inn in Chatham, and then back on Sunday to the airport. The dates again are June 12, 13, 14. Hope to see you there."

. . . **Joe Barker**, busy as all get out, reports that he and Mary have thoroughly enjoyed the **Irv McDaniel** and **Sylvia Young** travelogues. **Vertrees** says there should be some way to have the Irv McDaniel letters assembled and printed up before the 50th Reunion: "they are far too good not to be preserved." . . . **Jim Evans** and your secretary responded with pleasure to an invitation from **Phil Baker** in Detroit to be his luncheon guest, together with Sidney Gamble, Princeton, '13, in New York at Sardi's on February 1. Phil and Thelma left on the third for a Caribbean tour. . . . And, speaking of tours and trips, **Bill** and **Helen Leach** left San Francisco for a six weeks' trip to the Orient in January; **Hovey Freeman** went on an extended trip to Japan, Hong Kong, and Thailand in January; and late in February **Herb** and **Vi Mendelson** were leaving New York for a round-the-world trip, starting in Greece and including a two-week Museum of Natural History assignment for some-kind-of-strange-animal pictures in India, movies that is; then Thailand, Hong Kong and Japan. Wonder if some of these '16ers will meet—we didn't get their itineraries and schedules.

Frank Ross is coming along well since his coronary in November—his second. We have had two reports on Frank, one from **Emory Kemp** who talked with Mrs. Ross in December, and a second on February 1 from a personal friend of your secretary's, who recently took up winter living in Naples, visited Frank, and expected to play golf with him "at the Moorings Golf Club when I get back from my next trip to New England about the middle of the month." . . . Oh yes, back to travel notes; how about this, from **Steve Brophy**: "At the Ball of Roses, annual benefit for the Roosevelt Hospital, given at the Plaza Hotel a couple of weeks ago, Jess and I won the first prize in a raffle for the benefit of the hospital. It consisted of two first-class tickets for a 31-day cruise on the 'S.S. Argentina' to South America and return! So we are leaving March 13." . . . **Arthur Shuey** asks where **Hovey Freeman** was at the time the 1963 Reunion picture was taken; so you see, Hovey, you can't miss the next one. The Shueys enjoyed something most outstanding in January: their middle boy,

Dr. Henry M. Shuey, with Rohm and Haas at Huntsville, Ala., received the annual Research Award of the American Institute of Aeronautics and Astronautics, in recognition of his research in the application of aluminum to the stabilization of solid propellant combustion. Two former winners were chosen for the discovery of the Van Allen layer and the laser. The Shueys expect to make a trip to the Greek Isles this spring by freighter "if we can find anyone willing to take passengers over 70; those sailing from the Gulf seem reluctant." . . . **Elizabeth Pattee**, after two months in the British Isles, returned to her autumn work in landscape architecture in Warwick, R.I. Last June she retired from teaching as associate professor of landscape architecture in the Division of Architecture of the Rhode Island School of Design. Through the years she has avocationally become interested in conservation, is now on the Warwick Conservation Commission and is secretary-treasurer of the Rhode Island Association of Conservation Commissions. Her 1963 travels "included a fascinating trip up the Norwegian coast from Bergen to Kirkenes on the Russian line and return on a Norwegian mail boat which visits all the fjords and the towns and fishing villages all the way along the coast. As most of the towns were burned down when the Germans retreated at the end of World War II, these towns had to be entirely rebuilt, so there was interesting new architecture to be seen in housing, churches, schools, etc. Also was interested in the new towns surrounding Stockholm; their planning, siting of buildings, development of the town shopping centers, pedestrian ways, and land for pleasure and recreation."

Back in December, the National Observer had a story on "An Amazing Drug—A Drop on Finger Produces a Taste." It is the talk of the American Medical Association meetings, and something some doctors are excited about. It is Dimethyl Sulfoxide (DMSO) produced from pulp mill wastes, used as an industrial solvent manufactured by Crown Zellerbach Corporation's Bogalusa, Louisiana plant. That's **Vertrees Young's** plant from which he retired as president a short time ago. The Observer says: "Its most interesting possibility is an ability to penetrate and travel effortlessly from cell to cell in the body. . . . If found safe for human use, DMSO could be the carrier of insulin. . . ." **Vertrees**, in reply to our question, writes: "The cures and improvements effected by this are little short of miraculous, and the account in the paper does not begin to go into the full details. It may constitute a real breakthrough in several fields of medicine, and to think that we make it here in Bogalusa out of chemicals extracted from the black liquor in the pulp mill!" Tests and experiments continue relative to its human use.

We read recently in the Bell Labs News that President Johnson had announced that five scientists including **Vannevar Bush** received the 1963 National Medal of Science. And no matter what you read, Van's name is almost sure to crop up. For example, under "Notable and Quotable" in the Wall Street Journal, in a

statement to the House Select Committee on Government Research, he said: "The spectacular success of applied research during the war led to a fallacy entertained by many. It is that any problem can be solved by gathering enough scientists and giving them money. To solve the problem of the common cold, assemble a great institution, fill it with scientists and money, and soon we will have no more colds! It is folly thus to proceed. The great scientific steps forward originate in the minds of gifted scientists, not in the minds of promoters. The best way to proceed is to be sure that really inspired scientists have what they need to work with, and leave them alone." On the nose, Van! . . . **George Petit**, in West Hartford, still has his clients in construction forecasting "based on mathematical statistical equations which of course are always encompassed by a plus or minus probable error," a smart trend analysis technique of his own. His prediction errors have been notably smaller than those of other well-known estimators. Then as an avocation, he has been computing and giving probable results in the American and National Baseball Leagues. His September 1 prediction for the Chicago White Sox—second place, number of games won and lost—was exact! "What fun" says he, and so it must be, say we!

Ed Weissbach's rectorship at Christ Church in Somerville terminated on March 31 so he and Elizabeth "have to find a new domicile." As long as she teaches (Windsor School), "we plan to stay in the Boston area. We found the real estate in New Hampshire as costly as it is here so we are still scouting around." Ed forwarded a letter from **Arvin Page** and a color snapshot taken last spring in California of **John Ingle** and **Ed Parsons**. Wrote Arvin: "Neither of them seems to have changed very much in appearance," something that has been verified by looking at the 1917 Technique. Arvin reported progress in his arthritis battle, with some golf in November. He suggested we use the snapshot on the "Rogues Gallery" reunion bulletin board next June. Will do! . . . **Emory Kemp** says one thing he has learned to do since going to Florida is to take things easy. He keeps healthy though for "after you live here for a year or two you find that the lawns, shrubbery, citrus trees, etc., require constant attention." He speaks well of the newly formed M.I.T. Club of S.W. Florida and at the two meetings held so far he has found "a very nice group of all ages." We learn from a December 22 clipping of the Sarasota Herald Tribune that there are two Emory L. Kemps in town, that both wives call their husbands Lee, and that reporters sometime put a picture of the wrong Mrs. Kemp in the paper! We would know the difference, of course; ask Emory about it at the reunion. Our Kemps' second great-grandchild arrived in September; that makes three children, 14 grandchildren, and two great-grandchildren. Anyone score higher?

Bob Wilson resigned as Commissioner, U. S. Atomic Energy Commission, on February 1 after about four years in this history-steering job. We all regret his res-

ignation but know he did much, the way we would have it done, while he was active in this work. He and Pearl were to spend February on a motor trip to Florida and the Eastern Gulf Coast. Then, after an interval in Washington during the first half of March, they hoped to continue their trip through the Southwest, ending in Phoenix for some two weeks in April, and returning by motor to Washington in early May. Their permanent address will continue to be 4000 Cathedral Avenue, N.W., Washington 16. AEC chairman, Dr. Glenn T. Seaborg, concluded a public statement thus: "Dr. Wilson, the only AEC Commissioner to serve under three Presidents, has been a consistent and effective advocate and bulwark of Commission efforts for the development of peaceful uses of atomic energy. In particular, he has been an able and energetic leader in the Commission's important program for commercial production of electric power from nuclear reactors and in the development of peaceful uses of nuclear explosives. He has also been an ardent supporter of the expansion of the many peacetime uses of radioisotopes and was the chief architect of the Commission's proposed program for private ownership of special nuclear materials. My fellow Commissioners and I are indebted to Dr. Wilson for his unflagging interest and unremitting zeal in these and many other Commission matters. We shall all miss his expert knowledge and wise counsel." Bob knows 1916 is proud of him!

Jim Evans continues to keep us supplied with bits and chunks of 1916 correspondence. **Don Webster** expressed delight for the flowers sent by a small group to Nell in the Falmouth Hospital; she is doing well, and off to Florida they were to go after living for a few weeks on the ground floor. Don said this was the first Christmas in over 30 years without small fry, litter, animals, tree, fireplace, stockings, etc. . . . **Dave Patten** to Jim: "Fortune and humor govern the world and may you have both in 1964." **Will Wylde** sent Jim a do-it-yourself poem, "New England in October," very nicely done; it will be posted on the reunion bulletin board. Bob Wilson reported with pleasure he had just found that his 50th at Wooster College is to be held on June 6, so that he and Pearl could expect to be at our 48th on the 12th, 13th, and 14th. Jim also reported a letter from Gene MacDonald, '13, with thanks for the "picture of the year in our lives," from the joint reunion last June at the Oyster Harbors Club. . . . The February 6, 1916 luncheon at the Chemists' Club in New York was well attended, and this time under new arrangements in a named dining-room, that worked out very well indeed—no added room charge. Officers of the M.I.T. Club including H. E. Raymond, '31, were with the 1916-1917 bunch to tell of plans and arrangements with the Chemists' Club. Those present included '17ers: Aldrin, Bill Hunter back from living in France, Littlefield, Loengard, Neuburg, and Proctor, and '16ers: Dodge, Evans, Henry Hunter, McCarthy, Mendelson, and Stone. These luncheons are held on the Thursday following the first Monday of each month in the Chem-

ists' Club, 52 East 41st Street in New York at noon. Out-of-towners are urged to time their New York trips to coincide with these luncheons; the next ones are April 9, May 7, June 4. . . . We collect clippings of 1916 activities and recently got duplicates of the February 2 edition of the Boston Sunday Herald from **Henry Shepard** and **Dave Patten**. It was all about **Izzy Richmond** and a proposal. In part it reads: "Architect Proposes Site for a 1975 World's Fair For Boston. An eminent Boston architect has discovered 1,200 contiguous, unobstructed acres 9.2 miles from the Public Garden which he has found to be an ideal site for Boston's giant, multi-purpose stadium, and the World's Fair the community is striving to obtain for 1975. Isidor Richmond, a leading architect in Boston for nearly half a century, and one of the handful of naval aviators of the First World War still flying his own plane, was struck by the convenience, accessibility and magnitude of the site as he soared over it during one of his personal flights." Those who attend reunions can surely picture that! The article, will be at the reunion in June.

We have word that the 12th edition of "Quantitative Chemical Analysis" by Leicester F. Hamilton, '14, and **Stephen G. Simpson** will be published this spring. This edition is revised and expanded to include a good deal of new material and, for greater clarity and conciseness, answers to all the problems have been placed together in a separate section of the book. Twelfth Edition—how about that! . . . We continue to hear bits from all over. Here are a few items. The **Theron Curtises** left early in February "for Florida, just roaming around the swamp to get away from this ice and snow—back April 1." . . . **John Fairfield** continues teaching quarter time at Rensselaer, says he's been nowhere, seen no '16ers, and as for grandchildren, one has entered kindergarten, and one wants to. That really tells a story! . . . We see **George Camp's** name on the 1964 Fiesta Counsellors of the 16th Annual M.I.T. Fiesta in Mexico, to be held in Mexico City March 12-14. . . . The **Joel Connollys** write from Winter Park, Fla., where they are avoiding the rigors of northern winters, but their permanent address continues to be 239 Ferson Avenue, Iowa City, Iowa. . . . **Dick Berger** continues active in his work as head of Cancer Prevention, Inc.; a recent article in the Bridgeport Sunday Times states: "Bridgeport's Richard Berger used to be called a 'crackpot' but today he is widely acclaimed as a 'pioneer.' Berger acquired his 'crackpot' tag almost 20 years ago when he began issuing warnings that cigarette smoking produces cancer. Now he is regarded as one ahead of his time who has been vindicated by scientists who have just caught up with him." . . . **Spotts McDowell**, from his retirement spot in Pittsburgh, says: "I am just now trying to catch up on reading. However, many fine books are automatically eliminated from my list, because they are too technical for my understanding. I am now reading the last of three recent non-technical books on archaeology."

Announcement: **Eric Schabacker**

forged ahead on November 23; his 22nd grandchild was born! We believe this is the record, if our sloppily-kept records (**Hovey Freeman's** 21 and **Duke Wellington's** 21), are correct. If 22 is not a record, let us hear! Anyhow, Eric tells of having plenty of places to visit, all in the family. In the spring of '62, he and his wife visited their daughter and family (four grandchildren) in Viareggio, Italy, then traveled through Switzerland, Austria, and Germany to Paris to visit a son and family completing a three-year hitch with the Navy at the Headquarters of the European Command. In spring, 1963, they took two of their local grandchildren (Erie, Pa.) to visit cousins in Denver, and last fall visited their other families in Philadelphia and Williamstown. Does he do any work? Yes, says he, he still has a place to go three days a week but his son-in-law manages the little shop and makes all the decisions. . . . **Dina Coleman** has been very busy "trying to keep busy, a very difficult thing for me to do." As far as business is concerned, "we have made no great changes except we have started to develop a bed of limestone some 600 feet below drainage, and the headaches and sleepless nights that enterprize is causing should be enough for two or three people. At the present time, we are trying to get through a bed of water-bearing sandstone containing salt water and gas. Up to now we have practically been stopped in our tracks, but such problems have always been solved, and this one will be in time." In the field of other-people's-business he still gives a great deal of time to Transylvania College, "and now that we have enough plant and professors for 800 students, we are going to limit the enrollment to that and turn our attention to restoring Transylvania to the position of pre-eminence, which it used to enjoy 150 years ago." As though all that weren't enough, the Central Kentucky Philharmonic Society, now in its third year, has elected him president and "head money digger-up." So you see what Dina means: "trying to keep busy." . . . **Francis Stern** writes from Palm Springs, where he has been since January 4. Says he spoke to Irv McDaniel in Los Angeles at Christmas, who was then busy packing to move to Newport Beach. Francis hopes Irv and Katherine will get to Palm Springs soon for a visit, as promised. Francis golfs daily "and I walk, I don't take a cart!" . . . We have more but must defer reporting on letters received from **Marcel Gillis**, **Howard Claussen**, **Raymond Blakney**, and **Rudi Gruber** until next time. Remember the 48th Reunion dates—June 12, 13, and 14.—**Harold F. Dodge**, Secretary, 96 Briarcliff Road, Mountain Lakes, N.J.

'17

A couple of lines from Shakespeare's Sonnet xcvi may be appropriate to start these April notes:

"When proud-pied April, dress'd in all his trim,

Hath put a spirit of youth in everything."

Now that that is off our chest, we can get down to business. . . . Here is a note about a distinguished and well-liked honorary member of our class: "**Horace Ford**, M.I.T. 1917 (honoris causa), yesterday (January 9) celebrated his 79th birthday. As you know, Horace had a tough time for considerable period and withdrew entirely from his multitudinous activities and personal associations. You will be glad to hear that he has had an amazing recovery and is starting his 80th year as his old self—interested, interesting, and active. He gives his grandchildren and great-grandchildren major credit for his comeback." (Secretarial comment: Those with grandchildren and great-grandchildren should make full use of their indicated therapeutic value.)

Dean Parker brings us up to date as follows: "I am still teaching a special course in surface coating technology which I have been giving for nearly 20 years under the Chemical Engineering Department at Wayne State University in Detroit. John Wiley and Sons will publish the course material in book form sometime this year. I am still maintaining my consulting practice as a technical and marketing consultant in surface coatings and the raw materials used in them. Last summer I was invited to give a lecture on 'Recent Developments in Colored Pigments' at the School of Mines and Metallurgy of the University of Missouri in Rolla, Mo. Mrs. Parker and I drove out and enjoyed the trip and the country very much. Since retiring from the National Aniline Division of Allied Chemical Corporation we have been spending several weeks in Florida each winter. Last year we took a boat trip to Nassau which we found very thrilling. This year we took with us two little granddaughters and stayed with Mrs. Parker's sister and her husband at their lovely place on the Gulf at Englewood, Fla. The score on our grandchildren still stands at 20: 13 granddaughters and seven grandsons. Our oldest granddaughter entered Wells College on Lake Cayuga, N.Y., this fall. Another is due to start next fall. Wells is Mrs. Parker's alma mater. Our triplet grandsons are two and one-half years old and beginning to tear their house apart piece by piece. I will probably be spending some time in New York City this winter working on book editing with the publisher."

Bill Dennen and wife are certainly enthusiastic travelers. Bill writes the following from Merida, Yucatan, Mexico, on January 26: "Another year has rolled away and it was so short. Mrs. D. and I spent January, February and March, 1963, as usual making our headquarters in Mexico City. We came to Yucatan with Clarence Cornish, '24, and wife. Clarence left us at Merida and went back to Mexico City. The rest of us drove east and went to Isla Mujeres. We then went back to Mexico City via Tehuantepec and Oaxaca, arriving in time for the annual Mexico Fiesta of the M.I.T. Club of Mexico City. We left Mexico on April 1 for the drive home. We spent the summer at the farm (Scranton, Pa.) except for a couple of trips to Boston. Five grandchildren spent the summer with us to

help retain our youth. During September and October we had a Rotary exchange high school senior from Bombay, India, living with us. We left the last of October and drove to New Orleans where we boarded an Alcoa freighter for a Caribbean cruise which lasted a month, visiting Haiti, Puerto Rico, St. Thomas, St. Johns, St. Croix, four ports in Venezuela, Port of Spain, Trinidad, before docking in Mobile, Ala. We then drove to Mexico City in time to meet one of our granddaughters who was spending the holidays with the Cornish family. After she went back to the States, we started out to drive to Merida, Yucatan at a leisurely rate to recuperate after the strenuous holiday activities. Since arriving in Yucatan, we have spent our time swimming on the Gulf Coast near Progreso and on Cozumel Island off the east coast of Yucatan. From here we are going back to Mexico City via Oaxaca and will arrive in time for the spring M.I.T. club fiesta. After the fiesta, back to the farm again."

Enos Curtin was having a "night out" observing a hockey game by the New York Rangers, of which team he is a director. Incidentally, Enos is president of the National Society for the Prevention of Blindness which has a bearing on the following. During the game he exhibited one of the hazards of being a consumer of non-alcoholic beverages: he was prying off a metal cap from a bottle of soda pop when the bottle top broke and a splinter of glass flew up and lodged in his eye requiring minor surgery. Moral: follow the advice of the National Society for the prevention of Blindness and wear glasses with safety lenses. They cost only a dollar or two more than regular lenses and have been the means of protecting many an eye from serious injury. . . . The following item has been contributed about **Nelson Chase** "whose brush and talents were always available for the Tech Shows and Techniques. Nelson Chase (DKE) continues his craft of muralist with a pair of stunning murals for the walls of the Aesculapian suite of the Harvard Club of Boston. These two, 10 by 10 foot paintings, in full color and architectural concept depict on one hand 'Old Harvard, 1763' and 'Harvard Medical School Today.' And do not forget that Nelson Chase had already provided the Harvard Club with the dining room big scale painted tapestries, size 17 x 10 feet, a total of seven in all. While others consider retirement, Nelson Chase puts a longer handle on his brush. Let's cheer for our own Rembrandt."

Enos Curtin and **Dix Proctor** and wife "Vi" represented the class at the January 14 Alumni meeting at the M.I.T. Alumni Center of New York at the United Engineering Center. When you are in New York on the first Thursday of the first full week of any month, drop in at the class luncheon at the Chemists' Club, 50 East 41st Street and ask for Dix Proctor. . . . We can still use news of winter, summer, or fall vacations or travel, fishing, hunting, boating, or other means of recreation or even just staying at home. Perhaps we will even ask for a class poll of candidates for president and vice-president after the field has been shaken

down a bit.—**W. I. McNeill**, Secretary, 107 Wood Pond Road, West Hartford, Conn. 06107; **C. D. Proctor**, Assistant Secretary, P.O. Box 336, Lincoln Park, N.J. 07035.

'18

Progress is often a blooded ground. This comes from many causes. It may be because freedom is involved, or it may be where some perennial issue suddenly gets turned around so it can be handled in a new light. The mistaken ideas of dead men are not always dead ideas until some capable individual destroys them by formulating in words something that is already sufficiently in the air to be what Victor Hugo called "an idea whose time has come." Thus our **Bill Foster** is continually in the news as one who is showing at the disarmament conference table as much courage and resourcefulness as others have shown on a more violent field of battle. He is currently (mid-February) in Geneva again, where dead men's ideas still hamper the living, and where 17 nations are reconvened, following a five-month recess. Still, there is progress. The vital link that ties thought to action resulted last August in a partial test ban treaty. Now Bill is pressing for a program against the anticipated opposition of Semyon ("Scratchy") Tsarapkin, who represents Russia. Both sides really want a reduction in armament spending. "The main thing we need now," said Bill, "is patience and determination." The Red reply was, "Any method is good provided you get results." "Nothing else in the world . . . not all the armies . . . is so powerful as an idea whose time has come," whispers Victor Hugo. Has the right idea come yet to enough people?

Courtesy of **Pete Harrall**, with neither whispers nor sidelong glances, comes information that **Jim Bugbee** is vice-president of the Maryland Casualty Company of Baltimore, and one of the very few experts in the battle of setting automobile casualty rates. Jim is the brother of Percy and Harold Bugbee, '20, both also M.I.T. graduates and both executive officers in their respective companies. . . . **Arthur Smith** has fought for progress in the metallurgy field. In 1951 he wrote one of the original articles on zircon. As vice-president of Berkshire Chemical, Inc., this took him to Australia in 1955, where he did more work in connection with zircon and rutile. These are ores taken from the beaches "down under" and are now available from Florida sand. While in Australia he played golf at the Royal Melbourne Country Club. After living most of his life in Port Chester he moved to Scarsdale in 1947, where he sees **Nat Krass** occasionally when not putting around, semi-retired, with no intention of sitting in a rocker. Last June his daughter, who is a portrait painter, had a show of her work in Scarsdale. . . . Following 20 years of active duty in the coast artillery, **Granville Smith** prunes and waters his citrus grove in Florida. He plays golf and does things with his boat, but his current interest, as far as blooded ground

is concerned, centers on the lobby for disabled officers.

Sax Fletcher called from New York, and **Clarence Fuller** wrote from Foxborough, to convey the news that **Pete Sanger** has fought his last battle. He died on Christmas Day after a marvelously courageous struggle, part of which we witnessed at the reunion last June. After graduation, he started as a practicing mining engineer, but soon saw where progress beckoned to him. In 1923 he became eastern advertising manager of Rock Products magazine, later becoming an account executive for a New York advertising agency. Then, in 1933, he founded Sanger-Funnell, Inc., which soon booked a million a year. All in all, the kudos for calm courage in a terrifying and troubled time must go to Margaret who, by some miracle, was able for many months to keep from Pete the truth that his trouble was terminal. The men are never as brave over a long, hard pull as women are. Pete is also survived by two daughters and six grandchildren.

Alexander Magoun has striven all his life, often into the wee small hours of the morning, to make progress in straightening out a sentence which has run askew, until the crackle of an idea was sufficiently well expressed to please him. March 1 his 16th published book, "Amos Fortune's Choice," was available in the book stores (Bond Wheelwright, \$5). It is the March offering of one of the book clubs. An option has been purchased to translate it into German, and one to translate it into Italian. There is even the possibility of a movie. Because of the irksome proddings of his creative urge there are two more manuscripts now seeking publication. Progress in writing is also a blooded ground because of the perennial battle between authors and editors. In all these decades of my secretaryship, I do not remember an issue of The Review without something in the 1918 notes. Certainly last month was the first time that I had material and wrote nothing. This was not from sloth, but because the fight for freedom comes when the shoe pinches. There seemed to have been some question as to whether class secretaries received their mandate from their classmates, or whether the editor of The Review could censor what was written. This issue now seems to have been settled. If not, there will be no more 1918 notes signed—**F. Alexander Magoun**, Secretary, Jaffrey, N.H.

'19

John Stevens sent an interesting letter about a trip to Taiwan last fall. He spent a month there under contract with the Agency for International Development of our State Department, making a pulp and paper survey. Before he left for the Orient, he looked through the latest M.I.T. directory and found two graduates whom he had known at the Institute. They were **S. M. Lee**, Secretary-General Atomic Energy Council and **K. P. Hu**. "Hu was formerly in the lumber and plywood business but now is retired, or less

active than he was; in fact, he is writing for a news agency in Hong Kong and has recently published an article covering M.I.T. . . . We had a grand time talking over old times and actually even sat in a bar and sang the Technology song. These are wonderful fellows and it would be a pleasure if they could come over for our 45th Reunion." Thanks, John, for the interesting news. . . . **Eugene Mirabelli**, of our class, will be at a meeting in March at the M.I.T. Alumni Center in New York. The program of the meeting will be a special report on Civil Engineering at M.I.T., given by Professor Charles L. Miller, Head of the Department and the entire senior faculty of the department.

A 1919 pre-reunion luncheon was held on January 31 in New York at the Roger Smith Hotel. Thanks to **Buzz deLima**, who made the arrangements, we had a delicious luncheon in a private dining room. **Will Langille** reported that he had met with the Boston Committee for reunion and that it was decided that our 45th Reunion should be held at the Chatham Bars Inn, Chatham, Cape Cod, Mass. Reunion starts with cocktails and dinner on Friday, June 12 and continues on until Sunday after lunch or dinner. You will shortly be receiving a reservation card. Those present at the luncheon in New York were Will Langille, Don Way, Buzz deLima, Charlie Parsons, Jim Strobridge, Lester Wolfe, Jack Braverman, Leo Kelley, Ed Flynn, Ezzie Paterson, and myself. . . . **Charles A. Chayne** has a new address, Box 1096, Pebble Beach, Calif. 93953; **Alan G. Richards** is now living at 1710 Elevado Avenue, Arcadia, Calif.; **Lester Wolfe**, new address Apartment 31E, 215 East 68th Street, New York, N.Y. 10021; **Alfred W. Hough** has moved from Glens Falls, to 91 Deer Meadow Lane, Chatham, Mass. . . . We regret to report the death of two members of our class: **Thomas M. Lloyd**, 3810-47th Avenue, Long Island City, and **Victor N. Samoyloff**, of Vineland, N. J., on December 11, 1963.—**Eugene R. Smoley**, Secretary, 30 School Lane, Scarsdale, N.Y.

'21

One of the great joys which eases the burden of preparing these monthly chats with you, dear classmate, is the support we receive from M.I.T. and The Technology Review. One of our annual queries to The Review concerns the names of sons, daughters, grandchildren or other relatives of members of the Class of '21 who may have entered the Institute in the latest freshman class. This year we found that John Lewis Marshall, '67, has a great-uncle in the person of our own **Harold O. Bixby**. The young man's great-grandfather was the late John L. Bixby, Jr., of the Class of 1887! To Bix, our congratulations and good wishes wherever he may be at the moment, at his home at 100 Memorial Drive, Cambridge, vacationing at Charlotte Amalie in the Virgin Islands, or directing the H. O. Bixby Associates, Inc., of Asuncion, Paraguay. . . . As we go to press, **Lawrence W.**

Conant reports that his son, **Spicer**, is preparing to go to Technology for his doctorate.

Writing on the stationery of **Leo C. Pelkus** and Company, electric heating specialists of 204 Worcester Street (Route 9), Wellesley Hills 81, Mass., **Leo** says: "Believe it or not, I've just started attacking a small pile of back issues of *The Review*, hence must belatedly extend my sincere hopes that your recovery from the recent and so unfortunate unpleasantness is by now complete. Incidentally, whereas many of us do have seat belts, more of us like you, should wear them. Briefly, I am still intensely active, representing 'Chromalox' and other kindred accounts in New England. My staff now numbers nine, so I ought to retire soon, they tell me. Familywise, **Diane** is a junior at Wellesley and a recipient of the annual Borden Award and a General Motors scholarship. Her sister, **Dori**, is a freshman at Connecticut College and faring very well indeed. Obviously **Vivian** and I have not become grandchild-visitors-at-large as have so many of you. But then, we are still young!" Thanks, **Leo**, and please retain that youthful appearance by continuing to use those seat belts! . . . Retirement addresses have been received from **Albert E. Bachmann**, who has moved from St. Albans, Vt., and who can now be reached by addressing him at Keystone Heights, Fla.; **Donald B. Lovis** has left Winchester, Mass., to make his home at 2218 Snead Avenue, Dunedin, Fla.

Edouard N. Dubé is still busy with the returns from the Class of '21 letter, asking your preferences regarding our interim reunion possibilities. The current trend is toward a gathering in 1965 rather than this year and you will be kept informed of developments. **Ed's** latest recapitulation shows a slight edge for Mexico or Spain, but it is too early to base a decision on the returns and you may still want to get your vote into the ballot box if you haven't already done so. **Ed** says he has been visiting daughter **Lucienne** in Maine and is completely occupied with model building for grandson **Perry Jones**. . . . **William Wald** writes that he and **Anne** headed for Montego Bay for a vacation during February. . . . The **Larcom Randall's** are just now shoving off for a Mediterranean cruise. . . . **Thomas W. Bartram** says he and **Mildred** enjoyed a trip to Japan last April and spent the December holidays with their married daughter in Concord, Mass. . . . **Frank** and **Augusta Flaherty** are making plans for a world tour this spring. . . . **Julian T. Gentry** of the Boyle Bank Trust Company, has advised that his home address is now Route No. 2, Box 336, Danville, Ky. . . . **Zambry P. Giddens**, Executive Vice-president of the Dynamics Corporation of America, gives a new home address at 47 East 88th Street, New York 28, N.Y. . . . **Leon A. Lloyd** writes that his first year of retirement from the Narragansett Electric Company, Westerly, R.I., has been an exciting one. **Kathryn Jean** arrived in Atlanta to join **Cynthia**; they are children of his elder daughter, **Edith**. Daughter **Barbara** was married on December 21, 1963, to **Samuel Linton Hayes**, 3d, an in-

structor at Northeastern and doctoral candidate at Harvard. Son **David** was graduated "cum laude" from Tufts Engineering School last June, received his Navy commission and was assigned to Admiral Rickover's staff in the A.E.C. Division of Naval Reactors, by special invitation. A note from **Al** and **Emma** adds: "We missed you two last June in Cambridge. Had a fine time, as usual. In October, we took a vacation tour to Washington, Kansas City, Atlanta, Miami Beach, Nassau and Charlotte, N.C. Stopped to see **Helen** and **Edmund Farrand** in Leesburg, Georgia, who told us of your accident. On our way home, we tried to phone you from a service area on the New Jersey Turnpike, with no results. We subsequently called **Sumner Hayward**, who told us you were back on the job again. **Emma** keeps busy with church and civic activities. We both do things for people less fortunate than we, and I still don't see how I ever had time to work. Retirement is certainly to be recommended!"

Herbert C. DeStaebler, Jr., '50, writes, in part: "Thank you for your note about Dad. He was always very proud of his affiliation with M.I.T. and the friends he made there have always been very important to him. Although he didn't mention it in his card to you, he had been battling cancer for over a year. After operations in June, 1962, and January, 1963, it became clear that he would not recover. His last year was pretty miserable but he never complained and never gave up the fight." . . . **Charles W. Maloney** of Cohasset, Mass., has been appointed a consulting engineer by Stone and Webster Engineering Corporation. Following service with the Corps of Engineers, **Charlie** joined Stone and Webster in 1924 and became chief engineer in 1957. He is a member of the Institute of Electrical and Electronic Engineers and both the National and Massachusetts Societies of Professional Engineers. . . . As usual, the members of the Class of '21 make newsworthy reading every year and again come in for several mentions by the editor of the 1963 edition of the annual brochure entitled "M.I.T. Alumni Make News," which Class Agent **Ed Farrand** enclosed with his recent Amity Fund letter. In the order of their appearance: Under "Society News," **Arthur R. Gatewood** is president of the American Bureau of Shipping in New York City, an important professional group. The "Honors and Awards" section includes our own **Samuel E. Lunden**, Fellow of the American Institute of Architects, who was the recipient of that institute's Edward C. Kemper Award for significant contributions to the A.I.A. and to the architectural profession. **Sam** is the senior member of the Los Angeles architectural firm of Lunden and Johnson. Under "General Intelligence," it is noted that the invocation at the M.I.T. Victory Dinner last year in New York was given by the Reverend **Samuel H. Miller**, Dean of the Harvard Divinity School.

Norman F. Patton has been appointed assistant research director of the Northeastern Pennsylvania Blue Cross, to conduct projects involving the compilation of statistical data on services and benefits.

Prominent in the statistical field, **Norm** was associated with the Anthracite Institute for more than 30 years. He appeared as spokesman for the anthracite industry before numerous federal agencies, the U.S. Senate and the House of Representatives. We regret to learn of **Norm's** protracted illness and hospitalization last fall and are glad to hear from **Sumner Hayward** of his recovery and return to work.

Classmate **Augustus B. Kinzel**, Vice-president for Research, Union Carbide Corporation, has recently received additional recognition, which swells an already long list of honors bestowed upon him. He has been elected to the board of trustees of the California Institute of Technology, the board of trustees of the Salk Institute for Biological Studies, the board of directors of Beckman Instruments, Inc., and to membership in the American Philosophical Society. Last fall, he gave a talk as part of a joint conference on research, sponsored by the Société de Chimie Industrielle at Nice, France. **Gus** is regarded as one of the country's leading research metallurgists. He has served as consultant to the A.E.C. and has held a number of governmental advisory posts. . . . **John J. Winn, Jr.** retired last July after 12 years as general manager of the Port of Portland (Ore.) Commission. He and **Mrs. Winn** took a three-month trip to Europe and returned in time to attend the annual convention of the American Association of Port Authorities, which awarded him honorary lifetime membership, a recognition bestowed upon only 13 men in the association's 52-year history. He was also honored by receiving a citation from the Inland Empire Waterways Association for his "outstanding accomplishments in the field of comprehensive water resource development." **Jack** remains active in Port of Portland operations as a special consultant to the Port Commission.

It is with profound sorrow that we record the loss of three members of the Class of '21 and extend sincere sympathy to their families. **Stuart Emerson Bradford** died on December 1, 1962. A native of Hyannis, Mass., he was born on October 8, 1897, and prepared for Technology at the Chauncy Hall School. In World War I, he was a private in the S.A.T.C. at M.I.T. At Technology, he was a member of the Civil Engineering Society, the Chauncy Hall Club, Rifle Club and track squad. He received his degree with us in Course I and was a member of the staff of the Civil Engineering Department at the Institute for two years until he became superintendent of construction for the Raymond Concrete Pile Corporation in Buenaventura, Colombia, S.A. **Brad** served with the U. S. Coast and Geodetic Survey and the Lazo Petroleum Corporation in Maracaibo, Venezuela, and again became associated with the Raymond Concrete Pile organization as engineering superintendent in Caracas, Venezuela. . . . **Leonce Vaughan, Jr.**, of 1108 4th Street, Hartsville, S.C., died on November 30, 1963. He was graduated from Washington and Lee in 1918 with the A.B. degree and was associated with us in Course X. During World War I, he was a private

in the S.A.T.C. at the Institute. He joined the Carolina Fiber Company in Hartsville and was its long-time secretary and treasurer. . . . **Sherman Elliott Nichols** of 160 Plymouth Avenue, San Carlos, Calif., died on January 25, 1964. Born in West Somerville, Mass., on March 27, 1900, he prepared for the Institute at Cambridge High and Boston Latin Schools. He was a private in the S.A.T.C. at Technology during World War I. Through our undergraduate days, Nick was a member of the Glee Club and Corporation XV. He had been chief engineer of the Van Schaack Brothers chemical works in Chicago and assistant to the chief design engineer of Monsanto Chemical Company in St. Louis. Later, he was chief design engineer of Oscar Krenz, Inc., in San Francisco. At the time of his death, he was a design engineer for Lockheed Aircraft Corporation in Sunnyvale, Calif. He is survived by his wife. . . . Through the courtesy of Mrs. Juthe, we have additional data to last month's report of the passing of **Stanley Norman Juthe**, Course II, on September 2, 1963. Born on August 25, 1898, in Chicopee, Mass., he served in the Army in World War I and was a major in the 211th Coast Artillery Anti-Aircraft Battalion, National Guard. He was a life member of the First Corps of Cadets in Boston and also a Mason. He is survived by his wife, the former Beatrice L. Gould; a son, Stanley N., Jr., of Lexington, Mass.; a grandson Kristian N.; his father, Kristian N. Juthe of Altamonte Springs, Fla.; and a sister, Mrs. Homer F. Hunt of Milton, Mass.

Don't let spring fever catch up with you until you have jotted down an account of your recent travels, retirement plans, doings of your children and grandchildren and other items of interest and mailed it to your secretaries.—**Carole A. Clarke**, Secretary, c/o ITT Data and Information Systems Division, Route 17 and Garden State Parkway, Paramus, N.J. 07652; **Edwin T. Steffian**, Assistant Secretary, c/o Edwin T. Steffian and Associates, 376 Boylston Street, Boston, Mass. 02116.

'22

It is difficult not to boast about the weather in Buffalo this winter as we read about the hardships brought about by storm conditions and snow in other areas—while we look out on dry streets and sunny skies. Even our assistant secretary has left for warmer places—return date April 15. A newspaper clipping indicates that **E. H. (Buck) Eacker** has been advanced to board chairman of the Boston Gas Company. . . . **Clayt Grover** writes that he is enjoying retirement but gets in to New York a couple times a week. . . . Excerpts from various news media have shown that **Crawford Greenewalt** is busy as ever in his varied activities for public good. Our President **Parke Appel** will officially retire from the New England Telephone and Telegraph Company as of May 31, 1964, but a "sabbatical leave" arrangement has allowed his semi-vacation to start January 31. He has now joined William H. Coburn and Company

in Boston doing investment counsellor work. He will also continue to spend much time on Alumni Fund activities. We all expect to hear from Parke regarding both of these fields. . . . **Samuel H. Reynolds** has been appointed vice-president of Great Lakes Carbon Corporation. He has been serving as general sales manager, Graphite Products Division and will continue to be in charge of sales. . . . It was nice to hear from **Bill Bainbridge** of Pelham, N.Y.

Allan H. Kidder has been appointed chairman of the Research Products Committee of the Edison Electric Institute. This committee will advise concerning proposals for new research undertakings and general administration of all research work supported by the Institute. The 30 projects being sponsored by E.E.I. now represent a total of \$7-1/4 million, to which the Institute contributed or committed approximately \$5-1/4 million. Allan is assistant to the vice-president, Engineering and Research, Philadelphia Electric Company. He is active in numerous engineering organizations and is the author of various technical papers that have been published in national magazines. . . . **Dr. Ronald G. Macdonald** has been selected as the 1964 recipient of the Gold Medal Award of the Technical Association of the Pulp and Paper Industry, the association's highest honor, presented for achievements contributed to technical progress. Through his activities as an author and technical editor and as an executive of the association from 1927 to the present, Dr. Macdonald has become one of the best known figures in the paper and pulp industry. In 1952 he was honored for his outstanding contributions to industry with a doctor of science degree from the College of Education, Western Michigan University. He has been responsible in a large measure for the association's growth by developing many of its activities and editing the TAPPI magazine, the association's official journal.

Elmer W. Hammond of Los Angeles has been appointed manager, government services and special projects, for the western region by the Worthington Corporation. He has been manager of the company's sales offices in Los Angeles since 1957. He will remain and concentrate on sales to the government and the aerospace and electric utility industries. Wes is a past director of the California Natural Gas Association and is a member of the Pacific Coast Gas Association as well as many other business and social organizations.

Our sympathy is extended to Mr. and Mrs. **C. Ford Blanchard** for the loss of their son Donald, a first-year student at Virginia Military Institute. . . . We are also saddened to learn of the death of **Vaino Ronkanen** of Glens Falls, N.Y. Our sympathy goes to his wife Vilma and son George.

Among the new addresses received were those of **Charles C. Fulton**, Elmhurst, N.Y.; **Stephen B. Neiley**, Winchester, Mass.; **William D. Pinkham**, Sparta, N.J.; **Roland L. Smith**, Charleston, S.C.; **Cecilio Alincastre**, Cali, Columbia, S.A. . . . Your secretary is now taking various shots and packing bags for South Amer-

ica. Greetings to you all.—**Whitworth Ferguson**, Secretary, 333 Ellicott Street, Buffalo 3, N.Y.; **Oscar Horovitz**, Assistant Secretary, 33 Island Street, Boston 19.

'23

Most significant news this month will be found in the report of our M.I.T. President **Julius A. Stratton**. Those who participated in the Alumni Fund and S.C.F. projects will be most gratified to read this report. It is brimming with action and results. . . . The Committee on International Co-operation of the Edison Electric Institute, under the chairmanship of **R. G. Rincliffe**, Chairman of the Board, Philadelphia Electric Company, was established early in 1960 by the E.E.I. Board of Directors with the objective of maintaining general contact with the State Department and foreign groups who are in the United States on power supply matters. At the June, 1963, E.E.I. Board of Directors meeting, Mr. Rincliffe was among three appointed E.E.I. representatives on the E.E.I.—UNIPED (Union Internationale des Producteurs et Distributeurs d'Energie Electrique) Committee. . . . A picture in the February 7, 1964 'Portsmouth Periscope' reports that **Forrest F. Lange**, Head of Mobilization Planning Division, Management Engineering Office, Portsmouth Naval Shipyard has been re-elected secretary-treasurer of the Portsmouth Chapter of the National Association of Naval Technical Supervisors, of which he is former president and national vice-president. . . . A letter from **H. L. (Herb) Hayden**, February 7, includes the news that he has "been having a lot of fun this winter playing hockey with a group. We play a couple times a week at the Groton School rink. I am . . . still going strong." . . . **William S. Wise**, Director of the Connecticut Water Resources Commission, is on the cover of the December issue of 'Public Works' magazine. The cover story notes that Wise "can be proud of a number of improvements in the administration of the state's waterways and sources of water supply" and "also has figured prominently in regional and national water resource programs."

Word has been received of the death of **Hawley S. Young** of 52 Pond Street, Needham, Mass., an engineer for the New England Telephone and Telegraph Company for the past 41 years. A native of Burlington, Vt., he had lived in Needham for the past eight years. . . . The Chattanooga, Tenn., News-Free Press informs us of the death of Brigadier General **Harold A. Nisley** after a heart attack. General Nisley was chairman of the board of Warren Paint and Color Company and formerly president of Warren Brothers Company, since retiring from the U.S. Army in 1948. During World War II, he served as ordnance general on the staff of General Omar N. Bradley, Commander of the 12th Army. His honors included the Distinguished Service Medal, Legion of Merit and Bronze Star from the United States; Legion of Honor and Croix de Guerre with Palm from

France; the Crown of Oak from Luxembourg; Order of the British Empire from Great Britain; Order of Leopold II from Belgium; and the Order of Orange-Nassau from the Netherlands. . . . The deaths of **Charles E. Snow, Jr.** of New York City; **Roger E. Valentine** of Tsumeb, S.W. Africa in December; and **Herbert M. Leisk** of Flushing, N.Y., on January 25, have also been reported, but no details are available at this time.

Address changes include the following: **Benjamin P. Lane** to Joy Manufacturing Company, 757 Third Avenue, New York 17, N.Y.; Professor **George E. Barnes**, University of North Carolina, School of Public Health, Sanitary Engineering Department, Chapel Hill, N.C.; **John V. Cook**, 2802 West Foothill Drive, Phoenix, 27, Ariz.; **Benjamin Cooper**, Ladder Hill Road, Weston, Conn.; **Joel Y. Lund**, 200 Park Avenue, Convent, N.J.; Professor **Walter H. Newhouse**, Apt. 55, 4233 North Flowing Wells Road, Tucson 5, Ariz.; **Edward McSweeney**, King Street, Armonk, N.Y.—**Forrest F. Lange**, Secretary, 1196 Woodbury Avenue, Portsmouth 1, N.H.; **Bertrand A. McKittrick**, Assistant Secretary, 78 Fletcher Street, Lowell 52, Mass.

'24

Was a time when the boys of Nantucket didn't have to wonder what they would become. Just naturally they were slated to be whalers, or at least go to sea in some capacity. We had thought there was still no uncertainty today. Taking care of the tourist trade requires a lot of hands. But evidently we were wrong. In December a Career Night was held at Nantucket High School for a large gathering of students and parents. And leading the engineering discussions was **George W. Jones**, who had deserted engineering for summer rentals. . . . **Ed Dunlaevy** has had new duties thrust upon him. "Phelps Dodge Copper Products Corporation has announced the election of Edgar P. Dunlaevy, President, to the position of chief executive officer. He assumes his new duties immediately." . . . Bits and Pieces: The **Ambachs'** son, Dwight, a Foreign Service officer, is now a special graduate student in economics at M.I.T. . . . Lorene **Cardinal** escaped serious injury, but was badly shaken up, when her car was hit from behind by a skidding car. . . . At the December class luncheon at the New York Chemists' Club, Santa (Nat) **Schooler** gave out calendars to all comers, Cardinal fortified them with more vitamins.

Fred Ashworth retired from Merriman Brothers on February 1. We believe the company had recently been sold. . . . **Cy Duevel**, Paul Cardinal and your secretary are to meet early in March to square away some of the details of our forthcoming reunion. . . . **Ray Lehrer's** first letter from his African safari has just arrived. Their trip, which just about circles Africa, has had some last-minute changes, will probably have more. Zanzibar, for example, is no longer on the list.

This sort of thing, undoubtedly, has to be played by ear. . . . Your secretary was greatly pleased recently when **Charlie MacBrayne** stopped by. He has been made president of his company, Matthiessen-Hegeler Zinc, near Chicago. When some of his men had to come to Boston on a job, Charlie came along for the ride to see how the old place had changed.

With Ray Lehrer off tripping, **George Knight** has taken over as vice-chairman of our 40-Year Reunion Gift. By now you have undoubtedly heard from him with a detailed story of where we are and where we should be. He speaks for all your class officers in urging you to give your part in this major effort the serious attention it warrants.

John H. Gardner, Jr. was with us after graduating from Harvard. His father was Class of '94. Although John studied Naval Architecture, he was an attorney for the New Haven Railroad for many years. He died a year ago in March. . . . We are sorry to report that **Felix Stapleton's** wife, Alletta, passed away last November. The sympathies of the class go to Felix.

First returns to Cy's reunion letter look good, although as this is written it's too soon to quote meaningful figures. About half of those who have replied to date say they will be coming up to M.I.T. for Alumni Day. It should be quite an experience to stay in the new women's dormitory, McCormick Hall, and a cocktail party in that beautiful penthouse overlooking the Charles will be something to remember. If you haven't yet told Cy you will be there, better do so soon. It's limited space, and first comers get it.—**Henry B. Kane**, Secretary, M.I.T., Room 1-272, Cambridge 39.

'25

It is pleasant to report that a letter was recently received from **Tom Killian** who, as most of you know, is at Seattle University in Seattle, Wash., as assistant to the president for science and engineering. Tom had been at Seattle University as dean of mathematics in the thirties when the total enrollment there was only a few hundred students; they now have more than 4,000. Prior to joining Seattle University in April of 1962, he was deputy chief and chief scientist with the Office of Naval Research in Washington, D.C. It was in 1961 that he was commissioned as a rear admiral in the U.S. Naval Reserve, and he is still a member of the Ready Reserve of the Navy and has had active duty at the Naval War College, Pearl Harbor, and in the Office of the Secretary of Defense during the past two years. Tom notes that he plans to be at our 40th Reunion in 1965 along with his son and wife.

I hope we may be hearing from more of you who are making plans to be at the reunion. **Dave Goldman** is making progress in his plans for the reunion; and if he can select an evening for a committee meeting when the Boston area is not in the grip of a blizzard, more rapid progress will result! He has attempted two meetings in the past month, only to run into heavy snow storms on each occa-

sion. . . . It has been mentioned previously that **Edward H. deConingh** has been extremely active in the United Appeal Program in the Cleveland, Ohio, area. Last year, he played an important part in the raising of \$13 million for both the Chest agencies and the Red Cross. Ed has been further honored recently by being elected president of the Cleveland Community Chest. . . . Word has also reached us that **Lester C. Smith**, who is president and director of the Spencer Turbine Company, has been appointed to the Associate Board of the West Hartford Office of the Connecticut Bank and Trust Company. In addition to his other duties, he is a director and member of the executive committee of the West Hartford Chamber of Commerce, a member of the West Hartford Development Commission, and a founder of the University of Hartford.

I am sorry to report that the past month has brought news of the passing of two members of the class. **Charles T. Robbins** died in Waterville, Maine, on November 5, 1963. . . . **J. Howard Raftery** died in Geneva, Ill., on December 7, 1963. He was a nationally-known architect who took both undergraduate and graduate work at Princeton University and then attended M.I.T., being associated with the Class of '25. He later studied on a scholarship at the American Academy in Fontainebleau, France. His schooling was interrupted during World War I when he became one of the first aviators in the War. He trained in England with an American group and then had service over the lines in France. He opened an architectural office in Chicago in 1925; and except for a period during World War II, his firm, now known as Frazier, Raftery, Orr and Fairbank, has been most active. They have designed buildings in all parts of the country, including schools and public buildings as well as industrial and residential structures.—**F. L. Foster**, Secretary, Room 5-105, M.I.T., Cambridge, Mass. 02139.

'26

With the two month's lag between writing class notes and publication, you can project yourself into a sunny but cold mid-winter morning at Pigeon Cove. Even the ground is snow covered which is unusual, for the high winds blow most snow away. This time it was wet and sticky and the temperature dropped later. However, it doesn't seem cold after looking at some color photos **Whit Ashbridge** has sent me, taken above the clouds during a deer hunt in Wyoming. Whit's letter was written from his home at 3 Magnolia Parkway, Chevy Chase, Md.: "Dear George, For some time I have been meaning to write, and finally, being laid low in the hospital for a while with sciatica, have found time to do it. Our older boy, Dick, was married in Illinois last September. He and his bride were here over the Christmas holidays and have returned to Southern Illinois University where they are both seniors. While he was here, I took him and our younger son, John, goose hunting on Maryland's Eastern Shore. We shot a few

geese but my wife and the doctor seem to think that my sciatica may not have been helped by a day in a cold goose blind; maybe they were right. Over the Thanksgiving holiday, John and I hunted mule deer in Wyoming. We were in beautiful country, just west of the Continental Divide, hunting on snow-covered mountains above the clouds. John shot a doe and I got a good buck with 31½" antler spread. (John's makes better eating but I am having mine mounted for my trophy room which contains moose, caribou, antelope and deer heads.) Lest you think I do nothing but hunt, let me add that I am in my sixth year with the Veterans Administration, constructing hospitals to replace some of the outmoded ones and modernizing others. It is a most interesting job. What with my years at Los Alamos during the development of the atomic bomb, then 10 years in Venezuela, and now this, no one can say I haven't had a varied and interesting career! We've just had nine inches of snow here; hope Pigeon Cove was not too hard hit by the storm! Sincerely, Whitney Ashbridge."

I received a reprint this week from **Dave Shepard's** wife but it's all in French. The magazine is "Revue Petroliere" and I can translate the title because I remember a couple of French words and the rest are in English. The article describes one hour with Mr. D. A. Shepard, Vice-president of Standard Oil (N.J.) in charge of co-ordinating the activities of the Esso Group in Europe. Down in the middle of the article the interviewer appears to ask Dave his mission and here is what Dave said: "Quelle est ma mission ici, nous dit-il? Mais c'est très simple: Je suis chargé de participer à l'étude des politiques menées par Esso dans la conjoncture économique de l'Europe et du Moyen-Orient. Il nous paraît en effet évident que meilleure sera notre compréhension à partir de l'observation directe des événements importants des années présentes et à venir, mieux sera rempli notre rôle, en tant qu'homme d'affaires et citoyens, non seulement en Europe mais dans le monde."

As you recall, your three class officers, **Dave**, **Pink Salmon** and I got our heads together before Dave left for his European assignment and as a result **Austin Kelly** was appointed chairman of our 40th Reunion Class Gift Committee. Austin has been working hard to organize a plan and advisory committee. Last week he arranged a luncheon with two members of his advisory committee, **George Leness** and **Bill Forrester**, and I planned to hop over to New York for the luncheon, but the weather closed in and I wasn't sure that the air shuttle would get me back for a business meeting that evening. A long-hand note from Austin, however, reports that it was a successful meeting at which further groundwork was completed on the Class Gift plans. There are but two years for this undertaking and it is going to be the greatest achievement our class has ever sought. I'm itching to tell you more about the plan but old ducks-in-a-row Kelly wants to have everything completely organized and underway before he springs the plan. . . . Thanks to the clipping services we have caught up with **Arthur Brockelman** after a 10-year lapse.

The Worcester Telegram under a Lunenburg dateline says: "Arthur J. Brockelman, Sr., Chairman of the Board of Assessors, announced yesterday he will seek a second three-year term in the annual elections. Brockelman, a town resident the past 18 years, has also served as chairman of the Cemetery Commission. He is a director of the Worcester County Assessors Association, and a member of the Massachusetts Association of Assessors. For 25 years he was president of Brockelman Brothers, Inc., a grocery chain." Good luck and best wishes to you, Arthur.

The other evening at the Algonquin Club in Boston a friend called me over and introduced me to a new member, **Andy Edmonds**, '56, none other than our classmate **George's** son. Andy, a Course XV graduate, is associated with a Route 128 outfit called Materials Technology. While it was a quick introduction, it was easy to see that George has a very personable son. . . . Here are some new addresses just received from the Alumni Office. We will probably have more information as time goes on but even these changes are news. They are **Richard Whiting**, Pound Ridge Road, Bedford Village, N.Y.; **E. Bird Kelly**, 4 Putnam Road, Greenwich, Conn.; Captain **Clifton B. McFarland**, 1007 Polaris Drive, Pointe Mugu, Calif. One more is for a man I do not know but his name adds another clergyman to our list, Reverend **Carl H. Olson**, 4521 Aldrich Street, South, Minneapolis, Minn. This reminds me that we have not heard from Monsignor **Arthur Reilly** for some time. We hope that mentioning his name will stir him to writing. And what will it take to stir you to writing? We will be pleased to have more letters like the one from **Whit Ashbridge**.—**George W. Smith**, Secretary, E. I. duPont de Nemours and Company, 140 Federal Street, Boston, Mass.

'27

With regret we record the death of **Maurice Davier** on January 6 of cancer. Word reached us first through a lifetime friend of his, **B. P. Lambert**, '26, and **Bill Taggart**, who had received a letter from John Nalle, '20. Apparently Mike fell ill last summer and was under treatment during the fall. He was thought to be improving but died suddenly. **Henry Hoar**, '25, and **Bean Lambert** were pallbearers. Three years before, both, together with **Ted Faithfull**, '26, had been ushers when Mike remarried. Mike was a prominent undergraduate, having been general manager of "Technique," a member of the Institute Committee and on the fencing team. He came to Tech from Montclair, N.J., High School. In 1949, he became vice-president of Van Cleef Brothers, Inc., a subsidiary of Johns-Manville for whom he had worked since 1928. In 1955, he made the step from the business to the pedagogic field, becoming professor of business administration in the Graduate School of Business of the University of Virginia. He will be long remembered and respected.

Jim Lyles, our president, at this writ-

ing, is in the Neurological Institute in New York, having undergone an operation to relieve a constriction in an artery in his neck on February 4. The operation was a success. . . . A long and interesting letter has been received from **Amund Enger**. After heading up two ammunition factories for many years, he was confronted, two years ago with a recurrence of a liver ailment. He tried half-time work, but his doctor recommended a complete break and a milder climate. Now his address is **Cheserex s/Nyon**, Switzerland and he appears to be enjoying it to the full. He says, "though it is warmer here, we have skiing and other winter sports within a short distance from where we live, and the best part of all is the golf course at Divonne (France) only 15 minutes drive away. The city of Geneva takes care of our needs for shopping and entertainment. We are four miles inland but in front of us we have Lake Geneva with an imposing array of peaks on the farther side, with Mont Blanc in the distance. Divonne also has a casino where you can lose your money quite painlessly if you are so inclined. With all the American companies located in Geneva (30 minutes away), I expect that old classmates will be coming through, and we would certainly be glad to see and hear from old friends. Because of the build-up in this area, we have no phone as yet, but a note to our address brings us to Geneva quickly. We have explored nearby places this year, but come next summer, we plan to go a bit farther afield. We might even make a trip to the States." We hope you make it! **Amund** has two daughters by his first marriage. His present wife is from Mississippi.

Kimball L. Wheeler, who is manager of the plant and substation engineering department of Cleveland Electric Illuminating, has been made chairman of the electrical system and equipment committee of the Edison Electric Institute. . . . **Allan T. Gifford** is with the Atomic Energy Commission at Richland, Wash. . . . **Parry H. Moon**, who is associate professor of electrical engineering at M.I.T., wrote "The Scientific Basis of Illuminating Engineering" in 1936. With only a few revisions it is still in widespread use. . . . The pamphlet "M.I.T. Alumni Make News, 1963" is a sampling of the interesting and important doings of M.I.T.'s alumni distilled from the class notes section of The Review. In it, members of our class receive prominent mention. The very first item is that **Joe Melhado** is president of the Westchester Symphony Orchestra. Then follow: **Nathan Cohn**, President, Instrument Society of America; **Robert Bonnar**, Harold C. Chapin Award; **William Cave**, Exceptional Civilian Service Award; **Robert de Luccia**, George W. Goethals Medal; **Harold Fisher**, one of three new vice-presidents of Jersey Standard; and finally, **Francis Cahill**, who held a big winning ticket in the Irish sweepstakes! . . . New addresses: **Meyer G. Gorfinkle**, 17 Ames Road, Marblehead, Mass.; **Emory F. Patterson**, Stran-Steel Corporation, 5319 Pan-Am Building, 200 Park Avenue, New York 17, N.Y.—**Joseph S. Harris**, Secretary, Mason's Island, Mystic, Conn.

We recently received an interesting letter from **Fritz Rutherford** of Frogmore, S.C.: "Jo and I still have fond memories of the swell reunion we had last June on the Cape. I also remember our hot golf game, which wasn't so good as far as scores were concerned. I hope a committee is hard at work on our next reunion. We live away down here in South Carolina on St. Helena Island, which is on Port Royal Sound directly across from the Parris Island Marine Recruit Depot. We are on the Inter-Coastal Waterway opposite Black Buoy #31, which I note for the benefit of the sailors or yachtsmen so they can toot their horns and make a stop-over. We are between Savannah, Ga., and Charleston, S.C., about 15 miles south of Beaufort. Yes, we have good fishing and hunting with oysters, clams and crabs on the beach in front of our house. Jo and I are in a variety of civic affairs, which keep us busy. We are leaving next month for a month in Florida, and we hope to see several classmates along the way. Next August we are flying with another couple to Lisbon, Portugal, where we plan to rent a car and drive through Portugal, Spain and southern France down to Rome. From Rome we plan to fly to Athens for a couple of weeks, during which time we will take a one-week Aegean Island cruise. We will return to Milan and plan to drive through northern Italy up to Austria, Switzerland, Germany and finally to Paris. I would like to emphasize that if any of the gang of '28ers are headed toward Florida or South Carolina, please be sure and look us up."

From our loyal roving correspondent, **Jim Donovan**, we quote a couple letters: "The other day I was near Syracuse, so I telephoned our classmate **John Russell**, VI. John is manager of a large group doing research and development work at Electronics Park, G.E.'s attractive Syracuse operation. I did not have much time so John met me at the airport for a quick dinner, and after I took the plane he left for a teaching session. Naturally, I thought he was talking electronics, but his teaching mission is in a power squadron, which apparently operates on the lake. John has a 35-foot boat—more or less solid teak. His interests appear to be in boating, his wife's painting and in a farm owned by his daughter and son-in-law. John was just as slender, just as pleasant, and just as alert as ever." I don't know what John means by "as alert as ever." We are all about 57 years old, and does Jim Donovan think we are approaching senility at this point in life? However, another note from Jim reads: "Yesterday I had luncheon with **Dave Olken**, who has recently bought a large mill in Taunton, Mass., including 27 acres of industrial real estate, backed up by three lakes for water supply. Dave is now in his element as an architectural engineer for all the fact that his basic business is operating a top-flight dye house for yarn dyeing." . . . Through this column your secretary wishes to express the deepest sympathy of the class to **Ralph Joje** on the passing of

his mother late in January this year.

From the Esso Research and Engineering Company we learn that **Charles Hemminger** of Westfield, N.J., has been appointed scientific advisor, the highest technical post in the Esso Research and Engineering Company, by that company's board of directors. The appointment is in recognition of Charles' contribution to the company's research effort during his 27-year career. He has a reputation as a prolific inventor and currently has 120 patents, with 11 additional cases active in the Patent Office. His specialty is catalytic cracking and hydrocarbon synthesis research. . . . Let's dig into our file of reports made at our last reunion. Take **George E. Francis**: he said at that time that beginning in November, 1963, his address was to be H-211 Briny Breezes Park, Delray Beach, Fla. For the past 15 years he operated a custom machinery building operation, making equipment for 'automation' and other special purpose devices for various types of industrial processing. This business started quite small and grew satisfactorily but not spectacularly. On physician's advice he sold his business in January of 1963 and retired. George goes on to say: "I have a good wife, Gertrude, a son James, and a daughter Marcia. Both children are married and well on their way to a comfortable life. We have one grandchild to date but more are expected. We plan to make our permanent home in Delray Beach, where loafing is a real pleasure. We expect to engage in such activities as my health and retirement income will permit. We will be delighted to hear from any classmates who find themselves in the vicinity of Delray Beach."

From **Walter Hildick**, Course XV, 29 Aylesbury Road, Worcester, Mass.; he is president and treasurer of the Curtis and Marble Machine Company of Worcester. He says: "Our son William, a Dartmouth graduate, '58, is married, lives and works in Chicago, and has a daughter three years old. Our daughter Patricia, Radcliffe, '62, has just completed her first year at Yale School of Medicine. Our travels: We drove across the United States via Dallas, to California and Oregon in 1960. The following year we drove to Rocky Mountain National Park, Colorado; and in 1962 we went to Europe, sailing over on the 'Queen Mary' and returning on the 'Queen Elizabeth.'" . . . Your secretary modestly reports he was recently elected a director of the Lexington Trust Company, which is a crummy news item but proves that we need correspondents every month to fill this column. —**Hermon S. Swartz**, Secretary, Construction Publishing Company, Inc., P.O. Box 255, Lexington, Mass.

by Captain **Eric Bianchi**, has not been sitting on its hands. The initial meeting was held at Bald Peak Colony Club on Friday, October 4, 1963, for preliminary planning. A second meeting was held on January 17, 1964, and we will settle all details early this month. In addition to enjoying the natural attractions of Cape Cod, there will be golfing, swimming, fishing, antiquing, beachcombing, dancing, good food and excellent refreshments. An what better opportunity could you have to see and exchange lies with old classmates? Reports to date bear out my statement that the 35th will be the best ever. Forty-six couples and six singles are on the 'definite' list and approximately 140 other classmates are on the 'to be kept informed' list. If you are on the latter list, firm up as quickly as possible and get word to **Frank Mead**, Room 1408, 185 Franklin Street, Boston, Mass. All information regarding the cocktail party, the banquet, souvenirs, sports and transportation will be in your hands before you read this report. Don't miss our 35th, the 40th is five years away. Need I say more?

In case you don't remember, your reunion committee includes the following: Captain Eric Bianchi (Kay); First Mate Wally Gale (Joan); Crew: Brig Allen (Evelyn), Bill Baumrucker (Doris), Paul Donahue (Fran), Jim Fahey (Marie), Ed Farmer (Clara), Fish Hills (Peg), Ken Horgan (Ellen), Sol Horwitz (Ellie), Ted Malmstrom (Florence), Frank Mead (Mary), Jack Osborn (Molly), John Rich (Olive), John Wilson ("D.A."). Now how about it, classmates? Let's get with it and be at Wianno, June 13-15. There are so many of you that we haven't seen or heard from in such a long time. . . . Other class news is fragmentary. We have not been in print for a long time and many of our group may have lost interest as a result. I propose to do something about this, and if I can jar loose a few personal histories, I figure the campaign will be a success. If worse comes to worse, I will write my own personal history over the last 35 years. Will anyone take me up on this? Just to kick the ball along a bit, what has happened to Jim Magenis, Ted Ewald, Bill Lowery, Joe Llanos and Neil Ross, to name a few? Just a note will do the trick. A basketful will be appreciated by your classmates. Incidentally, have any of you recently read what the press said about you on or about November 8, 1925? Show up at the reunion and I will show you an original copy.—**Kenneth L. Horgan**, Acting Secretary, 121 Cherry Brook Road, Weston 93, Mass.

In these days of burgeoning school populations and the manifold problems they generate, it is always heartening to be reminded that a substantial number of our classmates are helping to solve these problems. According to my records, which may well be incomplete, some 32 members of our class are directly engaged in educational activities, and an indeterminate number of others are peripherally involved through, for example, school

"Now Hear This!" This is the year of our 35th Reunion! The time—June 13-15, 1964. The place—Wianno Club on Cape Cod. Attendance—every member of the class and his family. Our 30th at Bald Peak Colony Club was good in spite of the rain, but our 35th promises to be the best ever. Your reunion committee, headed

board membership. This month there are three items concerning educators. After graduating from M.I.T., **Ferd Rousseve** went on to obtain an M.A. at Chicago and a Ph.D. at Harvard. He is both an architect and professor of fine arts and departmental chairman at Boston College. Some of the buildings he has designed have been previously noted in this column; other details can be obtained from "Who's Who," in which he is now listed. Ferd has three daughters, two of whom are married, and six grandchildren. His youngest daughter, Marie, graduated from Boston College last June and now works for Hiram Walker Corporation in New York. . . . **Arthur Roberts** has left the field of machine design to become head of the Tool Technology Department at Norwalk State Technical Institute in Norwalk, Conn. He reports that "teaching is a lot of work, but quite a challenge, and very rewarding from the human viewpoint." He has four sons: Dudley, who graduated from University of Maine and is now a physicist with G.E.; Norman, who is a student at University of Conn.; Neil, who is in the Air Force with SAC; and Dana, who is in high school. . . . **Jim Saunders** is principal of Northbridge Junior-Senior High School in Whitinsville, Mass., which has about 1,000 students and a staff of 70. He has a son and daughter, both of whom graduated from Emerson College and are social workers.

George Perry spent most of the years 1931-1950 in South America and Mexico "ending up managing telephone operations in Colombia for interests now a part of General Telephone and Electronics." After an intermediate stint as chief engineer of an independent telephone company in Michigan, he has moved into real estate management as president of "The Minnesota Avenue, Inc.," which owns and/or operates a variety of commercial and agricultural properties in Kansas City, Kansas. George has two daughters: Cecile, who is married and has two children; and Caroline, who graduated from Grinnell and works for Brunswick Corporation in Chicago. . . . **Jim Rice**, after retiring as a regular army colonel in 1945, became interested in the problems of cleaning and preserving old and valuable textile fabrics and rugs. He has formed a company that operates under the name James W. Rice Associates in Silver Spring, Md., and does research and consulting work in this field. He has a son and daughter, both of whom graduated from University of Maryland, and eight grandchildren. . . . **Rollin Rosser** is practicing architecture in Dayton, Ohio. He has four children, ranging in age from 12 to 24. He is a past president of the Architects Society of Ohio and is active in church and club work in Dayton. . . . The October, 1963, issue of the 'Journal of the Boston Society of Civil Engineers' contains a series of papers concerning the reconstruction of a dry dock at the Portsmouth Navy Yard to handle FBM (Polaris) submarines. The first paper, presented by **Joe Rehler** (Captain U.S.N.), contains a very interesting review of the history of submarines, beginning with the submarine operations of "the Athenians

in the fourth century B.C. to clear the harbor entrance of Syracuse." Joe is public works officer and resident officer in charge of construction at Portsmouth. . . . Congratulations to the following classmates on their promotions: **Norwood Kenney**, from manager of engineering at Simplex Wire and Cable Company to vice-president; **Ken Bucklin**, from administrator, Tubes and Semi-conductor Engineering Liaison for the RCA Electron Tube Division to manager, Commercial Engineering, RCA Electronic Components and Devices; **Ed Hawkins**, from vice-president of Stone & Webster Engineering Company to president of Jamaica Public Service, Ltd. of Montreal. . . . Changes of address: **Bill Dickerman**, 149 Parsonage Road, Greenwich, Conn.; **Paul Hahn**, 229 W. Montgomery Avenue, Rockville, Md.; **Henry Pattison**, 45 Sutton Place South, New York; **Clyde Tirrell**, 929 Orma Drive, San Diego, Calif.—**Gordon K. Lister**, Secretary, 530 Fifth Avenue, New York 36, N.Y.; Assistant Secretaries: **Charles T. Abbott**, 26 Richard Road, Lexington 73, Mass.; **Louise Hall**, Box 6636, College Station, Durham, N.C.; **Ralph W. Peters**, 16 Whitestone Lane, Rochester 18, N.Y.

'31

Speaking of **Bob Fleming**, an article in the London Sunday Telegraph for January 26 entitled "Kiplingesque Americans of Panama Zone" stated: "The Zone's Governor, Mr. Robert Fleming, a likeable but fiery-tempered bantam of a man, a retired Army general, described them (the so-called Zonians) as '150 per cent Americans.'" . . . A thoughtful letter from **Les Green** says: "I used to practice medicine in Avon, Mass., in 1938 and 1939, and used to meet with **Dick Baltzer**, who was just elected president of the Avon Sole Company. I used to see him fairly frequently then, and a great nostalgia swept over me when I read the item in your column. I was happy to learn too that **Fitzy** became chairman of the Department of Electrical Engineering at Northeastern. I am still plugging away. I am trying to develop a field of biomedical engineering at New York Medical College, Flower Fifth Avenue Hospitals, where I teach as assistant clinical professor of orthopedic surgery. The dean seems interested. I will keep you informed if anything materializes. For several years now I have been giving courses in the field of biomedical engineering, the first two being entitled 'Basic Engineering for Orthopedic Surgeons' and the second 'Elementary Orthopedic Biomechanics.' You may be interested to know that my son and I are both hams. He is WA1CSV and I am K2QLX. I occasionally see **Bill Metcalf**. He is a general surgeon and does primarily hand surgery at Albert Einstein College of Medicine."

Jim Fisk was honored as 1963 Kappa Sigma Man of the Year. . . . **Don Sinclair** has been named to the board of directors of the National Shawmut Bank of Boston. . . . **George Bunker** has announced the formation of the Bunker-Ramo Cor-

poration. . . . Congratulations to **Don Holden** on having been named to the presidency of the Newport News Shipbuilding and Dry Dock Company. . . . It is with a deep feeling of sadness that we tell of the death of **Louis Gallinari** in the Melrose-Wakefield Hospital in December. . . . New addresses have been received for Miss **Margaret E. Carroll**, 2330-38th Street, St. Petersburg, Fla., and **Arthur K. Wing, Jr.**, R.F.D., Riegelsville, Pa. 18077.—**Edwin S. Worden**, Secretary, 35 Minute Man Hill, Westport, Conn.; **Gordon A. Speedie**, Assistant Secretary, 90 Falmouth Road, Arlington 74, Mass.

'32

An interview published in the New York Times with Dr. **Sidney M. Edelstein**, V, describes his recent discovery and translation of a 16th Century German text on cleaning and dyeing. He came across the work in the course of his collection of early texts and manuscripts of the chemical industry. His library of such works is one of the outstanding private collections of its kind in the country. Sidney is president of the Dexter Chemical Corporation, New York, N.Y. He was awarded the honorary doctor of science degree by the Lowell Technological Institute in 1956. . . . Under the chairmanship of **Robert W. Baschnagel**, VI, the Industrial Power and Heating Group of the Edison Electric Institute has an active program to promote the industrial market for power. He is the assistant general sales manager, Rochester Gas and Electric Corporation. . . . **Roger J. Zampell**, XVII, has been with the Naval Research Laboratory, Washington, D.C. for the past 16 years. He now heads the Engineering Branch, Public Works, which initiates construction projects for research programs. These include atomic reactors, cyclotrons, and other projects of general research nature.—**Elwood W. Schafer** Secretary, Room 10-318, M.I.T., Cambridge 39, Mass.

'33

Now, men, the first part of this insertion is gossip, and just what we need. All of it comes from **Cal Mohr**. Cal has been to Pittsburgh, where he had lunch with **Art Mason**, and missed **Ingvald Madsen**. Ingvald phoned, instead, with news that **Al Roscher** was then in Holland on business for the Pittsburgh Plate Glass Company. Art is still in the life insurance business, and Ing is with the Association of Iron and Steel Engineers. In Rochester N.Y., Cal had lunch with **Bob Smith** and **Walt Swanton**. Bob is manager of vessel sales of Pfaunder Permutit, Inc., and Walt is senior project engineer for the same company. Cal has read or heard the remainder of the gossip. **Frank (T. Francis) Twomey** was seen at a meeting of the Buffalo Chapter, A.I.Ch.E. Frank, it appears, has been with DuPont, Buffalo, almost since graduation. We both have

heard from **Walt Skees**, who is living in the Bahamas near Nassau, and on Green Turtle Cay (Key). Walt does a bit of drum beating for the fishing, as well as for the fabulous real estate developments in those islands, with the pitch (mine) for low taxes, and no income taxes. . . . From the Chemical Society's releases, Cal read of **S. Quimby Duntley**, author of "Light in the Sea." Quin seems to be quite prolific in writing such papers, and delivering them before learned groups. Quin is with the Scripps Oceanographic Institute of California, working on a special glass which is used in nuclear submarines. . . . Flash! **Andy Egan** has just received a promotion from Tennessee Eastman Company; we have no details. . . . Dr. **Gordon Pratt** wrote Cal from Big Rapids Mich., where he is medical director of Ferris State College. Gordon's eldest daughter is a nursing graduate of Duke, and his other two daughters are students at the University of Massachusetts.

We both hear quite often from **George Henning**, and Cal mentioned the Henning family Christmas Card. I can vouch for Cal's observations on that card, which is usually a family photo. George's family is himself and a bevy of beautiful and lovely girls, not the least of which is our beloved Lucy. George is back in sail again, with his "Loon," and is also chairman of the Class Nominating Committee whose report appeared in the March issue of *The Review*. From Arizona we hear that **Chuck Thumm** has sold his guest ranch, and has purchased the Siena Vista Apartments in the town of the same name. Chuck is way high on the list of Arizona boosters, and he has difficulty understanding how anyone can stand living in Chicago, where already Cal reports a low of 21 degrees below. We hereby ask Chuck to specify what part of his state is being referred to, as we have about frozen to death hunting in that same little old state, agreeably, high, high in the mountains.

In mentioning Bob Smith, above, we purposely refrained from mentioning that he is a grandfather three times. The reason for refraining is that we are starting a Grandfathers Club of 1933, with Bob and myself as charter members. The club dues will be moderate: any classmate who sends in the number of his grandchildren becomes a paid up member, provided he also includes something else of a personal nature. Any grandfather missive received before May 15 (this year) automatically makes the culprit a charter member if further personal information is included. We are going to start asking individuals, in print, for news if we don't get it otherwise. . . . Last now, but not least, again, **Cal Mohr** has been made president of the Chemical Equipment Sales Engineers Association of Chicago, of which he was formerly program chairman. Gentlemen, I wish to salute this fellow, Mohr, as one of our most interested and loyal fellow Alumni.

We have a few press releases of much more recent origin than those included in the March issue, so here goes. From California we hear that **William Rand** has been elected to the board of directors of United Research Services. Bill is an expert on "effects of rapid large energy releases from nuclear processes, and mis-

sile firings." (Egad, I hope I copied that one correctly.) Bill is an officer of the Kern County Land Company. Please figure out for yourselves the connection between the two, and drop me a line on it.

. . . **Chuck Fulkerson** announces that his firm, Waterbury Pressed Metal Company, has purchased the Sheffco Division of the Townsend Company, and that makes three divisions of W.P.M. Co. We had a bit about **Bob Winters** in the March issue, but, you cannot keep a good man down. Now comes four pages in *MacLean's Magazine*, Toronto, with the story of "Canada's Next Boom," and Bob's part in it. (See the January Technology Review, p. 21.) . . . When we made mention of Colonel **C. E. Newton's** retirement from the U. S. Corps of Engineers, we did not know with whom he would affiliate in private work. We find now, that he has been appointed manager of the Swindell-Dressler Corporation of Pittsburgh. . . . **Philip Coleman** has recently been elected president of the Bristol Brass Corporation. Phil joined Bristol in 1952, after 17 years with Anaconda American Brass Company. He has been a director of Accurate Brass for some time and more recently has been a director of Bristol.

We have another rather long article entitled "Washington Gets another Tourist Lure, an Aquarium," and, this involves another classmate. **Athelstan Spilhaus** received his masters, in 1933, was graduated from Cape Town University, and returned there for his doctorate in 1948. He was made dean of technology at the University of Minnesota the following year, which position he still holds. However, Dr. Spilhaus has many other interests, and was commissioner of the U.S. Science Exhibit at the Seattle World's Fair. He has held many advisory posts with the government and with private industry. He will be chairman of the Department of the Interior's Aquarium Committee. We were astounded to read that the Aquarium will cost the taxpayers (not the Government) \$10,000,000: no doubt a wonderful project for which we will have to dig just a bit deeper. . . . The New York Times, January 28, 1964, carried a fine article on our own **Dayton Clewell, Sr.**, who has been made a senior vice-president of Socony Mobil. Dayton will have charge of all research, engineering, patents, and development economics. He is our boy for sure. Well do some of us remember Dayton and another well known classmate whose name starts with G, whipping up a savory beef stew in Hayden years ago. They thought no one knew of their culinary accomplishments, and I guess that no one did outside of the inmates of Hayden, and, with the wind right, the next dorm, too. I am indebted to **Ed Goodridge** for the Times article:

At noon of the day I received the article, I went into the Bull and Bear of the Waldorf in search of raw clams, and walked three-quarters of the way around the room trying to find a small table for one. I just found the table when **Guido Garbarino** accosted me to join him and another; neither of them was eating. I eventually did get the clams, and lived to bless the expense account (not mine). Garb seems now to be on his way all around Africa, in his capacity as assistant

to the president of Westinghouse International. It was unexpected and really enjoyable to have such a pleasant visit with Garb. The same evening I had dinner with Ed Goodridge, who, when you read this, should be the newly-elected president of '33. I get to New York three to four times each year, and invariably spend an evening with Ed. I have a feeling that there will be more of these interludes. We had much to hash over, and came to no conclusions, except for one. Ed asked that I include in these notes mention that he wants to have an informal, regional reunion, this June, two nights and a day, at some spot equidistant from New York and Boston. No location has been decided upon, but will have been by the time the May notes appear. Full details will be included at that time. Mark your calendars, however, so that this notice will not be forgotten. Ed thinks that the Saturday, Saturday night, and Sunday before Alumni Day is about right for such an affair. So think it over and let us know.—**Warren Henderson**, Secretary, Fort Rock Farm, Exeter, N.H.

'34

We regret to report the death of **Jalo Kauppinen** at Mt. Carmel Mercy Hospital, Detroit, the same hospital where he had been a staff member. Jalo was born in Finland and was graduated with a B.S. in chemistry, then went on to Harvard Medical School. Our sympathies are extended to his wife, Marguerite, and to his mother. . . . **Gilbert Lorenz** recently received a fourth "Outstanding" rating for his work as chief of the Strategic Systems Division, U.S. Army Engineer Geodesy, Intelligence and Mapping R and D Agency, of Ft. Belvoir, Va. He is a lieutenant-colonel in the reserve. In 1948 in Switzerland he studied photogrammetry, which includes aerial surveys, and has evidently kept his lead in this important, rapidly developing field. We can only guess that part of his work has something to do with aerial surveillance. Planes used to go 170 mph and now satellites travel at 17,000 mph. Surely Gilbert received his award for doing more than just moving the decimal point over two places. . . . **Rudolph Greep** got a full page spread in the Portland, Maine, Express. This was not because he is manager of the S. D. Warren paper mill, but because he lives in the historic and beautiful "company house" built in 1809. Most of the pictures showed the tastefully decorated interior complete with Mrs. Nancy Greep and two children. No doubt the exquisite taste is due in part to Nancy's having had lots of time to think about decorating. She was born in the house next door. Her father had been mill manager also.

Dr. **John Hrones** has become a member of an A.S.E.E. committee that will study the problem of decreasing college freshmen choosing engineering courses against the forecast that demand for engineers will be more than double the expected number to be graduated. This important study will cover many phases of the engineer's life, from high school to retirement. It will predict likely changes in the

next decade. Johnny could do a powerful lot of research work on his classmates at our coming reunion, as we all have our opinions why so many of us left pure engineering. . . . Plans for the 30th Reunion were outlined in the reunion committee's February 10 letter. These plans were well advanced at a reunion committee meeting held January 14, with 10 members present despite a snowstorm. Arrangements with the Wychmere Harbor Club were discussed with a representative of the club who also attended, with **Carl Wilson** and **Del Keily** taking the lead. **Bob Becker** showed some stunning souvenir samples. **Al D'Arcey** disclosed plans for the aging athletes. **Walt Wrigley** agreed to think about the children who will accompany their parents. And much more. It was abundantly clear that the committee is going to lay on a memorable weekend at Harwichport on June 12-14. The next committee meeting was set for March 10.

In the March Review, it was reported that 100 classmates replied to the committee's November letter that they hope to come to the reunion. Fifteen additional names were received prior to February 1, bringing the total up to 115. The reunion committee's February 10 letter was mailed to all classmates except those who responded to the November 12 letter by saying they couldn't possibly come to the reunion. The Committee plans to write further only to those who have sent reunion reservations, so if you have slipped up on sending yours, get it off right away. The address is **N. B. Krim**, Reunion Chairman, Room 33-213, M.I.T.—**J. P. Eder**, Secretary, 1 Lockwood Road, Riverside, Conn.; **G. K. Crosby**, Secretary, 44 Deepwood Road, Darien, Conn.; **H. E. Thayer**, Secretary, 415 West Jackson Road, Webster Groves 19, Mo.; **M. S. Stevens**, Secretary, 9 Glenfield Road, Barington, R.I.

'35

By the time you read this, the golfers among you will have received notice of the Fourth Annual Class Golf Tournament. If you were inadvertently overlooked and are interested in knowing more about it, please contact **Art Marquardt**, 178 Mt. Vernon Street, Dedham, or your class secretary. **Sid Grazi**, the 1963 champion, is ready and willing to take on all comers. Some of us have been putting on rugs indoors for weeks waiting for the snow to disappear and warm weather to come. . . . U. S. Steel Corporation has announced the appointment of **William J. Bates** as director of administrative services at its Pittsburgh headquarters. Bill joined U. S. Steel as a production planning engineer in 1942. During the Korean crisis, he served as secretary to the corporation's defense program policy committee. In 1954, he was made director of the commercial department's methods and procedure division, the position he held until his new appointment. Bill lives with his family at 909 Old Hickory Road, Pittsburgh 16, Pa. . . . **John Goffe Benson** has been named

vice-president of Linde Division of Union Carbide Corporation and will serve as general manager of the cryogenic products department. The announcement was made by another of our classmates, **Robert F. Flood**, President of Linde. John joined Union Carbide in 1937 after receiving his master's degree from M.I.T. that June. He has served in several managerial positions (see our 25th Reunion booklet) and most recently was general manager of Linde's gas products department from 1961.

Jefferson Farmer has been named manager of St. Croix Paper Company mill at Woodland, Maine, and will be responsible for the overall operation of the manufacturing facilities. Immediately previous to this Jeff was assistant manager, services. He joined St. Croix in 1956 as plant engineer. The Farmers have one son, Clinton, presently at the U.S. Naval Academy, at Annapolis, and a daughter, married and residing in Texas. . . . **David J. Buckwalter** has been named smelter superintendent by the White Pine Copper Company, Ironwood, Mich. Dave, "who has been assistant smelter superintendent since July 1, came to White Pine in November 1962 as senior research engineer. He was previously associated with Southern Peru Copper Corporation as area superintendent in Toquepala, Peru. Other past associations include Utah Oil Refinery, American Smelting and Refining, Universal Chemical and U.S. Rubber Companies. A native of Pittsfield, Mass., Buckwalter is a graduate of M.I.T. He resides near Silver City with his wife Jean, and their son, David, Jr."

News from here and there. Your secretary on a recent trip to Washington, D.C. had a very enjoyable visit with **Louis Fong** in his office on the sixth floor of the NASA building at 600 Independence Avenue. Louis is director of the Office of Technology Utilization of NASA. His description of the job—"frustrating but interesting." . . . The 16th Annual M.I.T. Fiesta in Mexico became history in the middle of March. . . . Word has arrived of the death of **George S. Bays, Jr.**, Course X in Sydney, Australia, July 1, 1963. George received his masters' with us and went on for his doctorate two years later. . . . **Patrick J. Mahoney**, Course IX-B, has moved from Morrisville, Pa., to 35 Oakland Street, Natick, Mass. . . . Another Course IX-B, Lieutenant Colonel **Adam Altglass**, is now located at 311 Southdale Drive, Dayton, Ohio.—**Allan Q. Mowatt**, Secretary, 61 Beaumont Avenue, Newtonville 60, Mass.; Regional Secretaries: **Edward C. Edgar**, Kerry Lane, Chappaqua, N.Y.; **Hal L. Bemis**, 510 Avonwood Road, Haverford, Pa.; **Edward J. Collins**, 904 Merchandise Mart, Chicago 54, Ill.; and **Gerald C. Rich**, 105 Pasatiempo Drive, Santa Cruz, Calif.

'36

The mailbag this month includes news that **Willard Greenwood** has left the Forbes Lithograph Manufacturing Company where he has been since you know

when and has joined the staff of the S. D. Warren Company in Cumberland Mills, Maine. There he will engage in research, development and sales service. His experience includes considerable work in the fields of color measurement and control and the development of coatings and of inks for lithography, gravure, and letterpress. . . . **John E. Eberhardt**, who received his doctorate with our class, has moved from assistant manager of research to general manager of the Homer Research Laboratories of the Bethlehem Steel Company. Before coming to the Institute he was graduated from the University of Cincinnati. He went to Bethlehem in 1938. . . . **Walt MacAdam**, Vice-president of American Telephone and Telegraph Company, has been elected a director-at-large of the Institute of Electrical and Electronic Engineers.

Changes of address continue to appear. After working through these two I wonder how Japanese addresses should really appear: **Al Gray** may be reached at 85/7 Kitano Cho, 1 Chome, Ikuta-Ku, Kobe; and **Tommy Kato** at 503—1 Chome, Tamagawa Okusawa-Cho, Setagaya-Ku, Tokyo. Puzzle: should these be consistent in form? Now for the more prosaic: **Milt Dobrin** has moved from Pasadena to Altadena, Calif. (2080 Midlothian Drive); **Jim Leary**, our ex-secretary may be reached on Oneida Drive in Greenwich, Conn.; **Robert Lutz** is living in Scarsdale, N.Y., at 226 Dorchester Road; and **John Muma** in Northport, N.Y. (R.D. 1, Box 870). **Barney Rabin's** new address in Marblehead, Mass., is 35 Rockaway Avenue. Your secretary is still at the same old stand and is just dying to hear from each and every one of you. My mail has been little except ads and bills recently. Please!—**Alice H. Kimball**, Secretary, 20 Everett Avenue, Winchester, Mass.

'39

Eighty classmates, 71 wives, and 89 children are on the "yes" list in response to the first mailing on our 25th Reunion. And in addition, the "maybe" list contains the names of 54 more '39-ers, 51 wives, and 123 children. That compilation is of February 8, direct from **Seymour Sheinkopf**, Chairman of the Registration Committee. Those figures foretell an enthusiastic gathering, and it behooves all remaining classmates to get on the bandwagon quickly. . . . Colonel **Leo A. Kiley**, Vice-commander of the Air Force Cambridge Research Laboratories, Hanscom Field, Bedford, Mass., was the recipient of the Legion of Merit (First Oak Leaf Cluster), awarded in November for "exceptional meritorious service as manager of Department of Defense research associated with the nation's nuclear test programs." Leo was Deputy Chief of Staff, Weapons Effects and Tests Group, Field Command, Defense Atomic Support Agency, during the period of April, 1959, to May, 1963, which included the 1962 nuclear test program in the Pacific. . . . **Gordon E. Holbrook, II**, formerly chief engineer, Product Design

and Development, was recently promoted to director of engineering for engine development, at the Allison Division of General Motors. Gordon started with Allison as a senior project engineer in 1946, was promoted through several responsibilities in the turbine design group, became chief production engineer in 1960, and chief engineer of his group in 1961.

Dr. Domina Spencer, VIII and XVIII, nationally-known lighting authority, was the principal speaker recently at the Lynn (Mass.) Subsection meeting of the Institute of Electrical and Electronics Engineers. Dr. Spencer is professor of mathematics at the University of Connecticut, and has defined lighting terms mathematically to make illumination calculations using tensors, the basic language for scientific research. Dr. Spencer has authored more than 200 scientific papers on lighting, photometry, mathematics, and color. She has co-authored several books with her husband, Professor Parry Moon. She is a fellow of the Illuminating Engineering Society and the Optical Society of America, and is a member of the American Mathematical Society and Franklin Institute. . . . California Institute of Technology's "Engineering and Science," in its November, 1963 issue, carried in full a thoughtful article by **Richard Feynman, VIII**, Professor of Theoretical Physics at Caltech. Dick's article: "The Problem Of Teaching Physics In Latin America," is a transcript of the keynote speech given by him at the First Inter-American Conference on Physics Education, in Rio de Janeiro, in June, 1963.

. . . **Francis W. Sargent, IV**, who was named to head the Massachusetts Division of Fisheries about a year ago after having completed a term as executive director of the Outdoor Recreation Resources Review Commission as an Eisenhower appointee, was tapped in December by Governor Peabody of Massachusetts to serve as one of five commissioners for the Department of Public Works. The Massachusetts DPW had been under fire for charges of corruption, and Frank is one of five bi-partisan appointees charged with administering the department so as to bring credit instead of discredit to Massachusetts. . . . **Edward W. Yetter, VI-G**, an instrument consultant for DuPont, recently won an award for "A Time Shared Digital Process-Control System." The award to Yetter, as one of two DuPont co-authors of "the most outstanding paper in the process instrumentation field originally published in the Instrument Society of America Journal," was presented by the Recorder-Controller Section of the Scientific Apparatus Makers Association. . . . **Charles H. Hoffman, VI-G**, has been promoted from assistant system planning and development engineer, for the Public Service Electric and Gas Company, Newark, N.J. He had started with public service as a cadet engineer in the electric department, in July, 1940, and has remained with the company since that time, except for Naval service from December, 1942 to 1945, including a three year assignment as radar maintenance officer on the 'U.S.S. Wasp'.—**Os-**

wald Stewart, Secretary, P.O. Box 1238, Moravian Station, Bethlehem, Pa.

'40

Tom Jones, Jr., President of the University of South Carolina, was elected to a three-year term on the board of the Institute of Electrical and Electronics Engineers. . . . **Jerry McAfee** is one of the new members of the Pennsylvania Air Pollution Commission. . . . **Stewart Miller** is director, Guided Wave Systems Research of the Bell Telephone Laboratories, and is in charge of a group engaged in research on communications techniques for the millimeter wave and optical regions. He has been with Bell since 1941, working first on coaxial carrier repeaters and later joining the radio research department. . . . **Del Wight** is one of the new members of the board of Gresham, Ore., Chamber of Commerce.

Some of **Ed Josephson's** numerous accomplishments have been written up in a recent issue of 'Food Executive.' Ed is associate director for food radiation, U.S. Army Radiation Laboratory, Quartermaster Research and Engineering Center, Natick, Mass. An outstanding biochemist, Ed has been active in government research since 1944. In 1961 he was selected as one of three Department of the Army civilians to attend the Industrial College for the Armed Forces and received three commendations for achievement. His thesis, "Food Research and Development: Freedom from Want," was selected for outside publication and, in fact, there was a special request from the White House for 200 copies. Previously, he was cited by the Office of Scientific Research and Development in 1954 for six years participation in malaria research programs. . . . It is with regret that I report the death on January 16, 1964, of Commander **Phillip C. Morgan, Jr.** Phil was a member of Course XIII. Unfortunately, I have no further details in regard to his death at the present time.—**Alvin Gutttag**, Secretary, Cushman, Darby & Cushman, American Security Building, Washington 5, D.C.; **Samuel A. Goldblith**, Assistant Secretary, Department of Food Technology, M.I.T., Cambridge, Mass.

'41

At this writing, a Spring Get-Together for the Northeast area is planned for Friday, April 24. In previous years such affairs have been held in February or March and have usually resulted in transportation problems because of snow; hence the late April date for the affair this year. . . . Rear Admiral **William B. Sieglaff** has become commandant of the First Naval District, succeeding Rear Admiral Wallace M. Beakley. Bill is a World War II submarine hero, and was twice awarded the Navy Cross for his exploits in the Pacific. His command includes naval activities in all the New England states except Connecticut. He received a master of science degree from M.I.T. in 1941. Among his missions in World War II were seven patrols as commanding officer of the submarine 'Tautog' in the Pa-

cific area. The 'Tautog' sank or damaged several Japanese vessels, including merchantmen and fighting ships. He also commanded the 'Tech' on her first war patrol and took command of a captured Japanese submarine. He is married to the former Ruth Alice Maynard, daughter of Rear Admiral G. E. Maynard (ret.), and Mrs. Maynard. The Sieglaffs have two children: Astrea Kristin, married to Lieutenant (jg) Ralph A. Powers, Jr., U.S.N.R.; and Peter Maynard Sieglaff.

Rear Admiral **Edward A. Ruckner** is deputy chief of Naval Material for Research and Development and is reported to be one of the key people of Vice Admiral Schoech. He holds a master of science degree from M.I.T.—**Walter J. Kreske**, Secretary, 53 State Street, Boston 9, Mass.; **Henry Avery**, Assistant Secretary, 169 Mohawk Drive, Pittsburgh, Pa.; **Everett R. Ackerson**, Assistant Secretary, 16 Vernon Street, South Braintree, Mass.

'42

Toni Kayanan of Puerto Rico has been singularly honored by the Philippine Institute of Architects, which recently conferred on him the title of Honorary Fellow, P.I.A., "in recognition of his outstanding achievements in the field of regional and city planning and his professional stature which has won the admiration not only of his countrymen but also those of other countries." You may be interested to know that the other architects who were conferred similar awards at the same time were Sir Robert Mathew of England, M. Pierre Vago of France and Henry L. Wright of the U.S.A. Earlier, Toni had been appointed chairman of the National Planning Commission of the Philippines by President Macapagal, but had to decline the honor because of his professional commitments in Puerto Rico and South America. He couldn't even get time off to go to the award ceremony mentioned above, but he does plan to get back home to the Philippines this summer when he and his family hope to take a trip around the world.

Busy classmate **Jack Briggs** of Bethlehem Steel has been made manager of Market Research and Planning. He has been with Bethlehem ever since leaving Tech except for his service in the Navy. He has been manager of Commercial Research since November of 1957. . . . **Ray Shrewsbury**, who has been with 3M since 1957, has been appointed application equipment manager of the Adhesives, Coatings and Sealers Laboratory. . . . Now, for a personal note. For some time, we have recognized at the Institute the need for developing a Deferred Gifts or Bequest Program. At the conclusion of the Second Century Fund, I was given the assignment to do just this. Accordingly, I took a fairly intensive course in Estate Planning, where I learned some of the many shocking things that can happen to a person's family when he dies intestate or with an obsolete will. I have almost a missionary zeal in this field now, and I would be delighted to correspond with any of you about your own estate planning problems. Of course, you should

have a competent attorney draw your will, but it is quite possible that I might be able to give you a suggestion or two as to how you could conserve your estate and do more to protect your family than you might have thought possible. Just drop me a line and I will be glad to provide whatever service I can.—**Jack Sheetz**, Secretary, Room 7-203, M.I.T., Cambridge 39, Mass.

'43

The following Class News comes from Assistant Secretary **Jack McDonough**. It was like a class reunion. The place was the Chicago Engineers' Club the evening of January 30; the event, the Chicago M.I.T. Club meeting with Dr. Dan Q. Posen, noted scientist, educator, television personality and winner of six Emmy awards, as the featured speaker. He spoke on 'The Age of Space.' Of the 75 persons attending the meeting, five were from the Class of '43. Event Chairman was **(Charlie) E. Carleton Crocker**, Laboratory Manager at Nalco Chemical Company, Chicago. Thanks, Charlie, for a very enjoyable evening; you deserve huzzahs for inviting such a wonderfully interesting, knowledgeable, and marvelously humorous speaker. . . . It was a pleasant surprise to chat with **Christian J. Matthew** at the affair. Chris dropped in while on a trip for Research Specialties Company of Richmond, Calif., where he is general manager. He was formerly manager of A. D. Little's Western Division. . . . Also attending was **Warren L. Knauer** who, with his wife, joined us during the social hour and, like the good '43 man he is, was in good spirits. Warren, business manager of the Automotive Products Division of Motorola, Franklin Park, Ill., is a loyal supporter of the Chicago Club and frequently attends its functions.

The last time your writer saw **Bill, William B. Voorhis**, was at Cape Cod at the 15th Class Reunion. It was great seeing him again and reminisce over some of the doings six years ago. Bill is manager of the Semiconductor Department, National Electronics Division, Eitel McCullough, Geneva, Ill. . . . It's always a pleasure seeing one's classmates from Tech; the next Chicago chapter doings were scheduled for March 17, when we were to have dinner and see "How to Succeed in Business Without Really Trying." It's a great play. Charlie Crocker again was to be chairman. . . . We would like to hear from you guys out there with news (that's fit to print!).—**John W. McDonough, Jr.**, Assistant Secretary, 525 North Lincoln Street, Hinsdale, Ill.; **Richard M. Feingold**, Secretary, 10 North Main Street, West Hartford 7, Conn.

'44

About the time that you receive this issue of the Review, winter will be about over, and you will no doubt be thinking of what new ideas spring forth for sum-

mer activities. While in the mood, don't forget the Reunion in June, it promises to be a memorable one! I have started the program with the commercial, now I can get down to the news content, and I find it rather meager this month. **Henry Bourne, VI**, who graduated with us, and then went on to get his master's and doctorate, has just moved from associate professor in electrical engineering at the University of California to the chairmanship of the Electrical Engineering Department at Rice Institute in Houston, Texas. With the new space activities that seem to be headed that way, I am certain the Houston engineers will be very happy to welcome Henry. . . . Due to a new assignment on my part, I have managed to get around the territory a bit, and did see **Dick Maconi, II**, in New Haven. Dick, who had been with a contracting firm in New Haven, heading it up for some years, decided to start off his own wholly-owned firm. So, last December he founded the Maconi Construction Company, which specializes in general contracting. Dick says that he has started with a lot of bids to make, and with any luck 1964 will see Maconi Construction signs all over the New Haven landscape.

Herb Graetz, X, who is with Texas Instruments Division in Attleboro, Mass., has been appointed a new member of the board of directors of the International Rescue Committee, a 30-year old non-sectarian agency which aids refugees from political tyranny. . . . A note received says that **Stan Skelskie, VII**, who has been very active in the field of food preservation and quality control, has left the Buffalo area, and moved to New Bedford, Mass., where he has taken up the duties as director of research for Ocean Spray Cranberries, Inc. Unfortunately the note is brief, and I have no other news on the move. . . . In line with my making calls around the territory, I had a very pleasant lunch with **Harvey Sommer** in New Haven last week. He is president of Advanced Products, which is a company that he founded about seven years ago. They specialize in metal O rings which are used in the sealing of flanges under pressure. Advanced Products has done a lot in the nuclear reactor field, and have installations in many of the nuclear reactor installations around the country. Harvey, who lives in North Haven, tried Montauk at the end of Long Island this past summer for vacation. He admits that he is still more partial to the Cape, and that in the future that is where he will no doubt go. In addition to running Advanced Products, Harvey has been active in Alumni Fund work, and this past year was chairman of the New Haven fund drive. See you next month, don't forget the reunion.—**P. M. Heilman**, Secretary, 30 Ellery Lane, Westport, Conn.

'45

When I reported that I had seen **Red Harrington, Ray Pelley** and **Walter O'Connell** at West Point last fall, I neglected to indicate that Okie had been promoted to V.P., manufacturing, of Bald-

win, Ehret-Hill, in charge of the operation of the company's five plants. Much to my surprise, Okie received an M.S. degree in Industrial Engineering from Columbia in the late 1940's. . . . In mid-November William Jewell College of Liberty, Mo., honored Dr. **William K. Linvill** and his identical twin Dr. James G. Linvill, '43, with Achievement Citations as outstanding alumni. . . . You may have missed John Reid's comments regarding **Jack Atwood** in '48's notes of December last. Jack had complained to John that he was the only '45er to attend the gala opening of the M.I.T. Alumni Center of New York which, I believe, was the case. I had expected to be present but I was called out of town at the last moment. Jack, as you know, is product manager for solvents for General Aniline and Film Corporation. . . . Class Treasurer and Agent **Bill McKay** wrote the following in mid-December: "I will join the ranks of the Christmas contributors to the Springer mutual class information fund. First, a wedding, which is rather unusual at the 19th year of Class News. **Jim Gurney**, our Craigville Beach sailfish competitor, was married on December 8 at the Church of Our Saviour, New York, to Miss Florence Carpenter. After a few months in Florida, the Gurney's will make their home in Osterville on the Cape. **Sandy Neuhaus** was Jim's best man. . . . **Andy Marocchi** has moved into a new home at 460 Willow Drive, Pittsburgh. Andy's three sons are growing up fast and he's amazed to find them all in school now. He is still with Westinghouse Atomic Energy Division. There is nothing new with us, except that our new daughter, Margann, is providing lots of entertainment for the whole family. The local gentry get a laugh when we go out as a family group since number 1 son is now six feet tall and number 2 daughter is about one foot-ten inches! Our boys are both in high school now, Bill, a junior and David, a freshman. We are loaded with college catalogues right now and will have to make some decision soon."

Other interesting Christmas notes follow. **George Hetrick**: "Nothing much new to report—still in St. Louis, still with Armstrong Contracting, still their district manager directing their St. Louis, Memphis, Indianapolis, Louisville and Cincinnati operations." . . . **Vince Butler**: "Hope we get promoted to commander this year but my inside sources say it is almost impossible." . . . **Billie and Al Bowen**, '48, but '45 to be again: "Al took me on a business trip, Madrid, London, Copenhagen, Oslo, Munich, Zurich, Bonn and Paris. Al went to Pakistan by himself while I stayed in Denmark. We sailed home on the 'S.S. France,' not a hand of bridge en route!" . . . **Max Ruehrmund**: "Well the big push is on to Dover. Our operation is due to be transferred to Dover, Del., on April 1. We are building a new house not too far from the plant. I look forward to the five-minute ride after the one-hour battle I have endured the last 17 years."

Julian 'Buzz' Busby: "We are spending Christmas in Mississippi with my parents. The 'sunny South' has 10 inches of snow. We moved to Corpus Christi, Tex-

as, this fall where I am again in the oil business. The weather is wonderful. I note by the class notes that the Class of '44 is having its reunion in the Berkshires. If things work out I would like to stop by, and we could go up together. Jeff is 14 now and has just passed me in height; he played football as kicker and offensive end for his junior high team. George is 11 and is also interested in scouting. Since we are on the bay both boys are interested in the water and, I think are going to make fair sailors—sailboat that is!" . . . Edna (Mrs. J. J.) Strnad: "Hope you stop and see us again and bring Fran. The Cleveland Plain Dealer did a big spread on the leading business and professional men in the 40 and under group. J.J. was there but he says it is because he is such a good subscriber!" . . . Pete and Lou Hickey report that they keep busy with all those various community duties that at times appear as a burden to us all. Lou also bawled me out for not telephoning when I get to Philadelphia! I'll not only call but stop by on the next trip. . . . Prexy Dave Trageser put the family to work on his Christmas card as did George Bickford up in Syracuse. . . . Ned Bowman, '47, reports that he is enjoying his work with Minneapolis-Honeywell as his sabbatical year draws to an end. . . . Chick Street displayed the family sailboats on his Christmas block-print. I might add that I am well pleased with the Volkswagen I bought from big Chick early in February.

The McKay-labeled 'Springer mutual class information fund' is empty; please! Even a postcard contribution would help. —C. H. Springer, Secretary, Firemen's Mutual Insurance Company, 420 Lexington Avenue, New York, New York.

'46

Allan L. Bralove has been named executive vice-president of Documentation, Inc., a Bethesda, Md., information technology firm. . . . Robert H. Marks has been appointed managing editor of Power, a McGraw-Hill publication. Bob joined Power in 1957 after 11 years' experience in the design, application and sale of water-treating systems for industrial and utility plants. He returned to the water-treating field in 1959, and rejoined the magazine as an associate editor in 1960. In 1961 he was named special projects editor. Bob is a member of the American Society of Civil Engineers and is on the executive committee of the American Society of Mechanical Engineers. . . . Hugo C. Johnson, Jr., has been appointed director, product development division, U.S. Steel. After receiving his B.S. in Chemical Engineering from M.I.T., Hugo earned his master's from Ohio State in 1948. He also earned an M.B.A. in 1950 from the University of Pennsylvania. He joined U.S. Steel in 1950 as an assistant analyst, commercial department, and was transferred in 1953 to the coal chemical sales division where he served as administrative assistant. In 1954, he was named product development representative in the newly organized development division. In

1958 Hugo was promoted to project manager and in 1959 to assistant director of the division. . . . Thomas F. Malone, Director of Research for the Travelers Insurance Company, Hartford, Conn., spoke to the American Meteorological Society at their 44th annual meeting in Los Angeles last January on the "Meteorological Activities of the National Academy of Sciences." . . . The following classmates or associates have changed their abodes recently: Major Kenneth J. Hauser, Apt. 602, The Northward, Fairbanks, Alaska; John F. Marr, Jr., 140 Maxine Road, Bristol, Conn.; Miss Ann M. O'Rourke, 82 St. Stephen Street, Boston, Mass.; and Thomas Zawadzki, 511 Cherry Hill Road, Princeton, N.J. . . . In case you have forgotten, and would care to write, my address is—John A. Maynard, Secretary, 25 Pheasant Lane, North Oaks, St. Paul 10, Minn.

'49

Our news clippings this month indicate that '49 classmates are active and progressive. Donald R. Merriman has been elected vice-president, operations, of the Buckeye Pipe Line Company. He will continue as vice-president of Everglades Pipe Line Company, Buckeye's Florida affiliate. . . . Thomas H. Martzloff (S.M.) has been appointed vice-president, corporate development, of Holt, Rinehart and Winston, Inc., New York publishing house. He will head the firm's business planning and research activities. . . . M. E. (Bud) Shank is director of the Advanced Materials Research and Development Laboratory of Pratt and Whitney Aircraft Division of United Aircraft Corporation. Research areas include alloy development, mechanical behavior, chemistry and instrumental analysis and thermionic direct energy conversion. The laboratory has been going for three-and-a-half years and now employs about 75 people.

Harry B. Keller (S.M.) has joined the Naval Warfare Analysis Group of the Center for Naval Analyses. CNA comprises the Operations Evaluation Group, the Naval Warfare Analysis Group, the Institute of Naval Studies, and supporting research divisions. It manages and directs broad studies of problems in naval warfare and manpower, including operations research for the Navy and Marine Corps in undersea, air, surface, amphibious and electronic warfare, as well as logistics, strategy and naval applications of new technology. CNA is managed by the Franklin Institute of Pennsylvania, under contract with the Office of Naval Research. . . . Dr. William W. Seifert of M.I.T. is a member of A.S.E.E. Committee which will study the factors influencing the number and quality of persons entering the engineering profession, under a grant from the National Science Foundation. The problem which gives rise to the study is the forecast that current and future demand for engineers will be more than double the expected number of engineering graduates, while at the same time there is a decrease in the

number of college freshmen choosing engineering careers.

We have a brief history of James H. Burrows as a result of his appointment as associate technical director of the new Information Systems Directorate which is being set up by the MITRE Corporation to work specifically on information systems technology. Mr. Burrows was formerly head of the Computer Applications Department. An S.B., Course XV, Mr. Burrows went on to the University of Illinois for an M.S. in mathematics in 1951. From 1952 to 55 he was researching and teaching at the University of Chicago and teaching mathematics and physics at the Phillips Exeter Academy. In 1955, he joined M.I.T.'s Lincoln Laboratory. He became an Associate Head of the Computer Applications Department for The MITRE Corporation in 1959 and was named Department Head in 1961.

The rest of this report comes from Assistant Secretary Eaton. As this is written (February 13), the Reunion Committee is having so much fun getting ready for our colossal blow-out in June that we may just decide to throw this party every year. Russ Cox was so tickled about the overall format which he and Kemon Tachioglou have dreamed up that he kept me enthralled for half-an-hour on the phone telling all about it. The Board of Censors (Eaton, Lang, and Margolin) will listen to the whole plot before it is permanently adopted. . . . Tom Tsotsi is strategically located in downtown Boston where he works as a structural engineer for Charles A. Maguire and Associates. They build bridges and highway systems. Tom will take advantage of his location in the midst of the novelty house district when he buys the wholesale quantities of items for the kits we will hand each of you when you arrive. Included will be everything you will need to make a joyous noise and glad appearance at the Beaver Party Convention. Tom is also a tape-recording enthusiast and will preserve our words for posterity (i.e. for playback at other gatherings of the faithful).

Paul Johnson is a technical staff member of the MITRE Corporation where he is working on air traffic control studies. He has volunteered to concoct the questionnaire for the reunion. This should keep him busy! Not only must it be better than any other class ever did (naturally) but it must be cast in such a form that a summary of all the questionnaires can be easily prepared in time to edify you at the Saturday night banquet. It will be interesting to learn how many men had incomes exceeding \$250,000 in the first quarter of 1964, who came the farthest, who has the most children, who can do the most pushups, what our wives think of us (dare we ask?), etc. Of course, most of this will be confidential, so if you really are making a million a year, go right ahead and put it down. Nobody will ever find out. . . . Bob Cowen, who is Natural Science Editor for the Christian Science Monitor, will head the Press Corp for the reunion. Bob is an accomplished photographer and will head a team of gifted classmates to provide exceptional coverage. We are fortunate to have such

distinguished help. If any of you wish to assist Bob, I'm sure he would welcome volunteers. We will foot the bill for all materials. Drop me a line if you are interested. . . . **Neil Morrison** is manager of production engineering at the Electronic Data Processing Division of Minneapolis-Honeywell. The totally unexpected demand for their latest computer has kept Neil very busy. Nonetheless, he has agreed to take charge of activities. All forms of recreation will be Neil's concern. This includes trips, lectures, movies, sports, cruises, beach buggy rides, rainy day fun, and seeing that the children have fun. That's right. Children are welcome and the **Maslons** have already made plans to bring their four.

Kemon announces with satisfaction that he has secured the main speaker for Saturday night. This personage is an intellectual (to suit the audience) and a political figure (to suit the occasion). He is Professor Thomas Mahoney of the Institute faculty. . . . **Wally Douglas** is working for General Electric in Pittsfield, Mass., on fire control equipment for the Polaris submarine. Earlier, during the Korean War, he did a tour of duty in the Naval Air Corp and then went to work for the Martin Company in Baltimore. After that he moved to Raytheon in Lowell, Mass., where he worked on the Hawk Missile System. He and his lovely wife, Barbara, will be at the reunion. . . . **Jack and Peggy Fogarty** sent a copy of their Christmas letter, which makes delightful reading. Letters like this warm a scribe's heart more than you know. The Fogartys live in Philadelphia, and Jack works at Univac where "he heads the engineering section designing banking window machines for direct entry of savings bank transactions into a computer for Univac's 'Unisaver' banking system." He had one patent issued and two papers published during the year." They have two children: Eric, 5½, and Barbie, 3. Eric loves kindergarten and Barbie loves Eric. Boatrides, trainrides, camping in the Adirondacks, and trips to New York City and Cincinnati have kept parents and children happily occupied when Jack has been able to get away from work. Both Jack and Peggy are active in civic affairs and Peggy keeps in trim every Friday morning by going bowling at an alley which has a baby sitting service to look after Barbie.—**Frank T. Hulswit**, Secretary, Arthur D. Little, Ltd., 197 Knightsbridge, London, S.W., England; **Fletcher Eaton**, Assistant Secretary, 83 Herrick Road, Newton Center, 59, Mass.

'54

Only two months now until our gathering in celebration of 10 years of fighting the world. You all should have received the letter from **Bob Anslow** concerning the big event; in case some of you were missed, we repeat the basic information. Our 10th Reunion will be held on June 12-14 at the Curtis Hotel in Lenox, Mass. Any of you who did not receive Bob's letter and the class questionnaire are asked to let me know, so

that we can correct our address files and send you a questionnaire. . . . Various news items from various sources have found their way to St. Louis recently. **Rog** and **Elaine Griffin** are still in the Boston area. Their family, at the last count, included two sons, Chuck and Roger. Rog continues to play engineer for General Electric. . . . **George Schwenk** has submitted his annual report on the Jolly Boys and related splinter groups. George himself is still working for the army at Fort Devens, Mass. He spent two weeks in the field last summer at Yakima, Wash., acting like a real soldier. Among the other items in George's report is the news that **Dick and Shirley Morley** have acquired another son, Robert, born last October 8. . . . **Art Jacob** is still the big patent lawyer in Highland Park, N.J. **Russ** and **Marilyn Barnes** were overwhelmed by the arrival of their first-born, Leslie Michelle, on April 1, 1963. . . . **Dave Sternlight**, apparently enjoying being a "shadow of his former self," was observed at the Detroit Computer Conference last May. . . . **Harry Taylor** writes from Los Angeles that his job at Northrop Space Laboratories was cancelled out from under him, but he is sticking with Northrop, suggesting other ways in which his talents might be used. Harry also says that he greatly enjoys his Educational Council activities. . . . **Dave Wones** sends us word that his work with U. S. Geological Survey in Washington, D.C., continues to run smoothly. Dave won an award for the best technical paper for 1963 from the Geological Society of Washington, D.C. He spent last summer wandering around the Sierra Nevada and the Berkeley, Calif., area. Dave reports that **Charlie Burnham** and **Hal Olsen** are still with the Geological Survey. Hal and his wife Virginia are re-doing a house on Capitol Hill as their contribution to the rehabilitation of Washington. **Dick Walker** is in Pittsfield, Mass., running a lime plant for U.S. Gypsum.

Dean and **Judith Jacoby** drove down from Alton, Ill., to spend a very pleasant evening with Marcia and myself in January. We discussed quite thoroughly a problem we have in common, namely that of a wife who thinks summer time is synonymous with paint-the-house time. Dean reports that **Roy Riedinger** has switched from the Packaging Department to Industrial Chemical Sales at the Proctor and Gamble operation in Cincinnati. Dean also supplied some information on **Will Fiske** and **Tom Henderson**. Will and his wife now list three dependents: Lisa, Eric, and Kirk. Tom and his wife Mitzi list six: Alec, Jamie, Elizabeth, Celia, and two cats, Snowflake and Orpheus. Tom is now the general manager of the Building Division of the Guy F. Atkinson Company in San Francisco. . . . As a final note this month, we pass on the information supplied by **Dan Farkas** that he and his wife Bridget now have a one-year-old son. Dan is an assistant professor of food processing at the Cornell University College of Agriculture at Geneva, N.Y. And that does it until next month. Keep the letters coming.—**Edwin G. Eigel, Jr.**, Secretary, 4945-A Sutherland Avenue, St. Louis, Mo.



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We received a very nice note from **Dave Kramer** to bring us up to date on his doings since graduation. In August of 1955 he married Sandra Saltzman of Boston and moved to New York City to attend Columbia. After obtaining the M.S. in metallurgy, he moved to Canoga Park, Calif., taking a position with North American Aviation. Presently, Dave is a member of the technical staff of the North American Aviation Science Center. Dave and Sandra have two children and currently live at 6700 Sate Avenue in Canoga Park. Dave would very much like to hear from **Bob Madey** and **Steve Weingram**. . . . We had an opportunity to visit with **Peter Sarmanian**, who is heavily involved in the Apollo Guidance Program at the M.I.T. Instrumentation Laboratory. Pete entered the Air Force after graduation and was flying F-100's at the time of his release. He joined the Instrumentation Lab on the Polaris Program, and was promptly called back into the service during the Berlin crisis. After discharge, he joined the Apollo group and currently spends some of his spare time flying F-86's with the Air National Guard.

Dennis Shapiro recently did some flying for himself also. He and his partner in a Beechcraft Bonanza flew down to Key West, Fla., and across the Gulf of Mexico to Merida on the Yucatan for a Mexican vacation. After climbing the Mayan Pyramids, they hopped over to Acapulco for a few days in the sun and topped it off with a stay in Mexico City before returning stateside. Dennis recommends Mexico highly. He was warned that the range of the aircraft might be seriously hampered by a strange Mexican disease variously known as "Montezuma's Revenge" or the "Mayan Two-Step." However, by substituting the excellent Mexican cerveza (beer to you) for water, the boys managed to circumvent this problem neatly. . . . **Sotirios S. Kitrilakis** has been named a director of Raycon, Inc., South Windsor, Conn. The firm will provide industrial radiation services. Sotirios, a resident of Newton, Mass., is research manager of Thermo Electron Engineering Company in Waltham. He has been active in the field of energy conversion for the past five years. . . . **Marsbed Hablanian** had a paper published in "Test Engineering." Marsbed, who is chief development engineer at NRC Equipment Corporation, has presented papers at many technical symposia and has written numerous articles for technical publications.

The residence and studio of **Robert T. Coles** at 321 Humboldt Parkway, Buffalo, N.Y., have received an Award of Merit for excellence in design from the New York State Association of Architects. He is one of nine honored for outstanding work in all categories at the association's convention. Bob's resolve was to build a house for himself which he felt was "right for the age in which we live." A confirmed believer in the city, he chose the lot—one of the few remaining in the city—on Humboldt Parkway. . . . **William B. Smith**

had a paper published in the I.E.E.E. Transactions on Space Electronics & Telemetry. In 1955 Bill joined the Radio Physics Division of M.I.T. Lincoln Laboratory, where his principal activities have been in the fields of secure communications, ionospheric propagation, and radar astronomy. . . . Major **Jack W. Hunter** of Durham, N.C., received the United States Air Force Commendation Medal at Andrews AFB, Md. Jack was awarded the medal for his meritorious service as a research and development planning officer at Headquarters, Air Force Systems Command. An astronautical engineer, he was commissioned in 1943 through the Aviation Cadet program. A veteran of 21 years' service, he served in Japan and Korea during the Korean conflict. . . . See you again next month.—Co-secretaries: **Mrs. J. H. Venarde (Dell Lanier)** 2401 Brae Road, Ardentown, Wilmington, Del.; **L. Dennis Shapiro**, Aerospace Research, Inc., 130 Lincoln Street, Boston 35, Mass.

'57

It is difficult to imagine that by the time this column is published spring will have arrived. Outside my apartment here on Beacon Hill the snow is falling and the wind is blowing. In addition to the lag in publishing the news I submit, there appears to be a growing gap between the time I receive news from all of you and the time when I find space to fit it into a column. Most of the letters I report on below arrived last fall. I trust that those whose letters have not as yet been noted, will have patience. To start off this month's news is a letter from **Darrell Fowler** who is a captain in the U.S. Army: "I returned to the states from a three-year tour of duty in Germany in August. The last year and a-half was spent in a particularly interesting job; I commanded a technical intelligence unit in Heidelberg. Incidentally, I was awarded an Army Commendation Medal for my work there. My wife, Marty, and both children (one boy, one girl) are here in Alabama with me. I am attending a three-month school which is diabolically planned to end a few days before Christmas. From here we will go to Picatinny Arsenal, which is near Dover, N.J. I will be assigned to an Army Munitions Command headquarters there. I visited **Dennis Powell** and his family in August. Dennis is working for IBM and is happily settled with his wife, Anne, and two daughters in Philadelphia." . . . A brief note from **John Fredericks** informed me that he is married, has two children, and is president of a retail fuel oil business in Oak Ridge, N.J. . . . **John Holmfeld** wrote as follows: "I left my position with General Dynamics Astronautics, where I was a senior flight test engineer, in March of 1962 to join NASA. I represent the Marshall Space Flight Center at the Rocketdyne plant, specifically as a resident project engineer on the F-1 rocket engine. In July of 1960, I married the former Karen Gregerson of Detroit. Karen is now teaching school here in the San Fernando Valley." . . . **Went Erickson**, who is now

residing in Plainfield, N.J., recently sent me this letter: "Although originally in the Class of '57, I encountered some delays which held things up until last year. During the interval I took one term of humanities at M.I.T. and some courses in modern history and in government at the Harvard Summer School. My thesis was completed and the S.B. degree received in September of 1962. (Thesis title: "Ion Exchange Resins as Conductors in Water Demineralization by Electrodialysis.") I attended the graduate school at Tech in the fall of 1962 and the School of Chemical Engineering Practice in the spring of 1963, receiving the S.M. degree last June. I am currently doing work in process development for the American Cyanamid Company in Bound Brook, N.J." . . . Two closing notes: **John Funderburg** graduated from the Harvard Business School in June and is now employed by the French Oil Mill Machinery Company and living in Piqua, Ohio. **Jordan Gruzen** has been advanced to the rank of associate and director of design by the firm of Kelly and Gruzen, architects-engineers in New York. Jordan was in charge of design for the award-winning New Jersey State Medium Security Prison to be built at Leesburg, N.J., and recently directed the planning of Litho City, the United World Center, and the related master plan proposals for the redevelopment of the West Side of New York, adjacent to Lincoln Center. . . . More letters will be published next month.—**Frederick L. Morefield**, Secretary, 1-A Acorn Street, Boston 8.

'59

Hello out there! I presume the Class of '59 still exists although for the past two months I have had no proof of this existence. At the least, write to the reunion committee for reservations for the up and coming reunion and enclose a brief note on your current activities. . . . In the meantime, here are a few items left from last month.

By now **Larry Laben** should have two children at his home in Portland, Maine. . . . **George Luedeke** is with Uncle Sam's Army in Warren, Mich., but expects to be out soon. . . . Of the old 'The Tech' boys, **John McElroy** is married and in his first year at the Harvard Business School, **Steve Samuels** is an assistant professor of mathematics at Purdue, **Dave Packer** is a research associate at the School of Industrial Management, and **Phil Beach** has recently returned to work at the Management School after two fascinating years in West Africa on the M.I.T. Fellows in Africa Program. . . . **Stew Wilson** and his fiancée, Renate von Bulow, will go to her home in Germany to be married in March. . . . **R. R. Wiley** must have made quite a pile when he recently sold his firm, Worlds Unlimited, to Instrument Corporation of Florida and became their division manager.

From **Phil Beach** here are some reunion notes: "Plans are zooming ahead for our reunion on June 13 and 14 at the Chatham Bars Inn on old Cape Cod. **Glenn Zeiders'** letter of January 29 tells

us that the weekend will include sailing, swimming, tennis, golf, sun worshipping, clambaking, drinking, banqueting and general carousing, a veritable fest of cruising, boozing, and snoozing. So far, over 70 '59ers have indicated their intention of coming alone. **Jack Fischer** is so eager that he wants us to organize tennis and golf tournaments. **Larry Boyd** derides **Dave Packer** as 'Pig Pen,' and then proceeds to say that he won't come unless he gets a handout from some old grad. Incidentally, if you did not get Glenn's letter and would like to have more information on the reunion, write to Dave Packer at Room 52-561, M.I.T., and we will get everything off to you, pronto. Glenn's letter is the last general mailing, and future information will go only to those who have indicated an interest in the Chatham Bars blast. At any rate we will keep you informed in this column."—**Robert A. Muh**, Secretary, 165 West 66th Street (7R), New York 23, N.Y.

'60

The news silence was joyfully broken by **Sue Schur**. Here is what she had to say: "I thought I would drop you a note and give you some info for the class notes. (You will probably find this slanted toward most of the old gang in metallurgy.) A good portion of the metallurgy crew is still studying away and a good number of them at Tech. **Terry Bower**, **Hal Brody**, **Gary Miller**, and **Tom Courtney** are working for their doctorates over in Building 35. Tom got his S.M. at Cornell and then decided to come back here. He and Mary Beth now have two children—Cindy and Hugh. . . . **Stan Michalik** got his S.M. and is now in Connecticut working for Pratt and Whitney's Advanced Development Laboratory. . . . **Wayne Hayden** received his Sc.D. and is with International Nickel in their Bayonne (N.J.) Laboratory. . . . **Joe Goldstein** is working for his doctorate; he is with the X-ray group. During the summer he married Barbara Hammond, a Cornell grad. . . . **Ed Pollard** is also working toward his doctorate at M.I.T. . . . **Dave Kalish** is also back at Tech after working for ManLabs in Cambridge.

"There are some Class of '60 metallurgists who are at other schools. **Dick Higgins** is finishing up work on a doctorate at Northwestern. He was recently engaged to a gal named Jessica who is also a grad student at Northwestern. . . . Last I heard, **Ted Ansbacher** was going back to school at either University of Maine or University of Vermont. . . . And some of us are slaving away in industry. **Hank Hobbs** is working for a R & D firm in Cambridge—Lexington Laboratories. . . . **Steele Irons** is at a R & D firm in Walham—Mitron Research and Development Corporation. . . . **Milt Red**, after getting his S.M. from Tech, went to work at American Brake Shoe in New Jersey. He and Jeannie are now the proud parents of a little boy. . . . **Hugh** and **Marlin Morrow** are in Pittsburgh where Hugh is working for Westinghouse's Bettis Atomic

Plant. (Hugh also received an S.M. from Tech in metallurgy.) . . . **Paul** and **Bev Jacobson** are in Baltimore where Jake is working for Martin. He got his master's from Sheffield in England. . . . **John Palmieri**, after a stint in the Army, is working at the Instrumentation Lab. I worked for a small R & D company doing electron beam microanalysis and X-ray work. Then I was a 'technical consultant' for an ad agency in New York. Now, I'm back in Boston doing free-lance technical advertising work and design work. I have also been the editor of the Society of Women Engineers' publication—the SWE Newsletter—for the past two-and-a-half years and have also been having some one-man art exhibits around the Boston area. . . . **Sonny** and **Marlene Pierce** are in Dayton where Sonny is finishing up his Air Force commitment. Before playing soldier, Sonny received his S.M. from the Institute. Also out at Wright Patterson is **Bart Krawetz**. **Larry Carr**, after working for Sikorsky, is back at school—I believe at N.Y.U. . . . **Dick Levine** is an assistant professor at Tech in Electrical Engineering. Dick and I worked together on a physics book, Dick doing the writing, and I the illustrating. Over last Thanksgiving Dick married Sara Seidman, a B.U. grad." Many thanks for the letter Sue.

I also received a card from **Bob Stengel**. He reports that "after three years in the Air Force assigned to NASA at Wallops Island, I am back in school working towards a master's or more in aeronautical engineering at Princeton." Bob also says that **Tony Caserta** is working on ground support equipment for the lunar excursion module at Grumman and on a Ph.D. at some undetermined school, Brooklyn Poly, I think. . . . Other bits and pieces: **Barry Karger** is now an assistant professor of chemistry at Northeastern University in Boston. . . . **Richard Dougall** is now on the faculty of the University of Pittsburgh as a professor of science. . . . We received a brief note from **Larry Elman**. He is living in Glastonbury, Conn., and going to school at the Hartford Graduate Center of R.P.I. Larry is also employed by United Aircraft at their research labs in East Hartford. Larry reports he is looking for other Course XVI types in the area. . . . **Howard Hayden** has joined International Nickel Company, Inc., as a research metallurgist at the company's research lab at Bayonne, N.J. . . . **Kenneth Nordtvedt** was named a junior fellow at Harvard; he is studying theoretical physics. . . . **Ron Rohrer** has been appointed an assistant professor in electrical engineering at the University of Illinois. . . . I also got word that **Monroe Bernold** is working as an infra-red engineer at Barnes Engineering Company in Connecticut and working toward an M.S. in electrical engineering at Columbia.—**John B. Stevenson**, Secretary, Partridgeville Road, Athol, Mass.

'62

T. J. Lageman, X, writes that he is working both as plant engineer and safety director for Pearsall Chemical Com-

pany in Pittsburgh and Baltimore. As for his future, I quote: "No marriage in sight and no children either." . . . **Robert Dinsmore**, IV, has left his job at Boston Redevelopment Authority and has entered the Army reserves at Fort Dix, N.J. An article appeared in the magazine 'Spotlight,' published by the Connecticut Light and Power Company, concerning **Herbert Nwagha**, VI. Herbert is from Nigeria and plans to return there after learning as much about engineering as he can in the West. He is working on transmission and distribution projects for CL&P. He received his M.S. in electrical engineering at University of Connecticut and is considering going on for a Ph.D. at a British university. . . . Captain **David Scott**, XVI, is one of several fliers who recently graduated from the 26-month-old Air Force Aerospace Research Pilot School. He has been chosen as an astronaut for the NASA Manned Spacecraft Center in Houston, Texas. And you think what you're doing is interesting! Captain Scott has his M.S. and professional engineer degrees from M.I.T. and has been in the Air Force for nine years. . . . **Gerald Pomraning** has won the \$500 Mark Mills Award from the American Nuclear Society for a paper entitled "A New Asymptotic Diffusion Theory," which he wrote while at M.I.T. The award is for the best technical paper related to nuclear science by a graduate student.

The growth rate of mail from class members has jumped infinitely: from zero for a year and-a-half to two letters last month. At this rate I will probably be swamped by the deluge in the next few months.—**Jerry Katell**, Secretary, Stanford Business School, Palo Alto, Calif.

'63

It's too early to evaluate the results of the Class of '63 Loan Fund drive. Hopefully we will have information for you before summer. If you haven't already sent your contribution, if it somehow has slipped your mind, remember that every little bit helps, literally. And every donor will receive a free subscription to this periodical. . . . On the personal scene there isn't much. No one is writing about it anyway. **Steve Swerling** and his bride, **Marla**, are in West Haven, Conn. Steve is finishing up his master's in electrical engineering and plans on locating in the Boston area afterwards—at least for awhile. . . . **Ben Bossin** is now formally engaged to **Emily Eliot** of Boston University. He is working at the Harvard Computation Center as a programmer. . . . **Vern Bremberg**, now in Graduate Course XV, was married over Christmas and is living with his bride in Nahant. . . . **Don Yansen** has returned to the Boston area after spending a year in Southern California. . . . **Jim Nick** has begun work on his master's in Electrical Engineering at University of Washington. He was working for Boeing on the Dynasoar project. . . . Remember if you have any news, whatsoever, jot it down, pronto, and mail it to me.—**Bob Johnson**, Secretary, F-41 McCulloch, H.B.S., Boston 63, Mass.

YOUR DAY: June 15



M.I.T. will show its Alumni on their day, June 15, some of the remarkable research in medicine now under way. Nearly every Institute department is involved. Many more M.I.T. students go on to medical schools now than ever before.

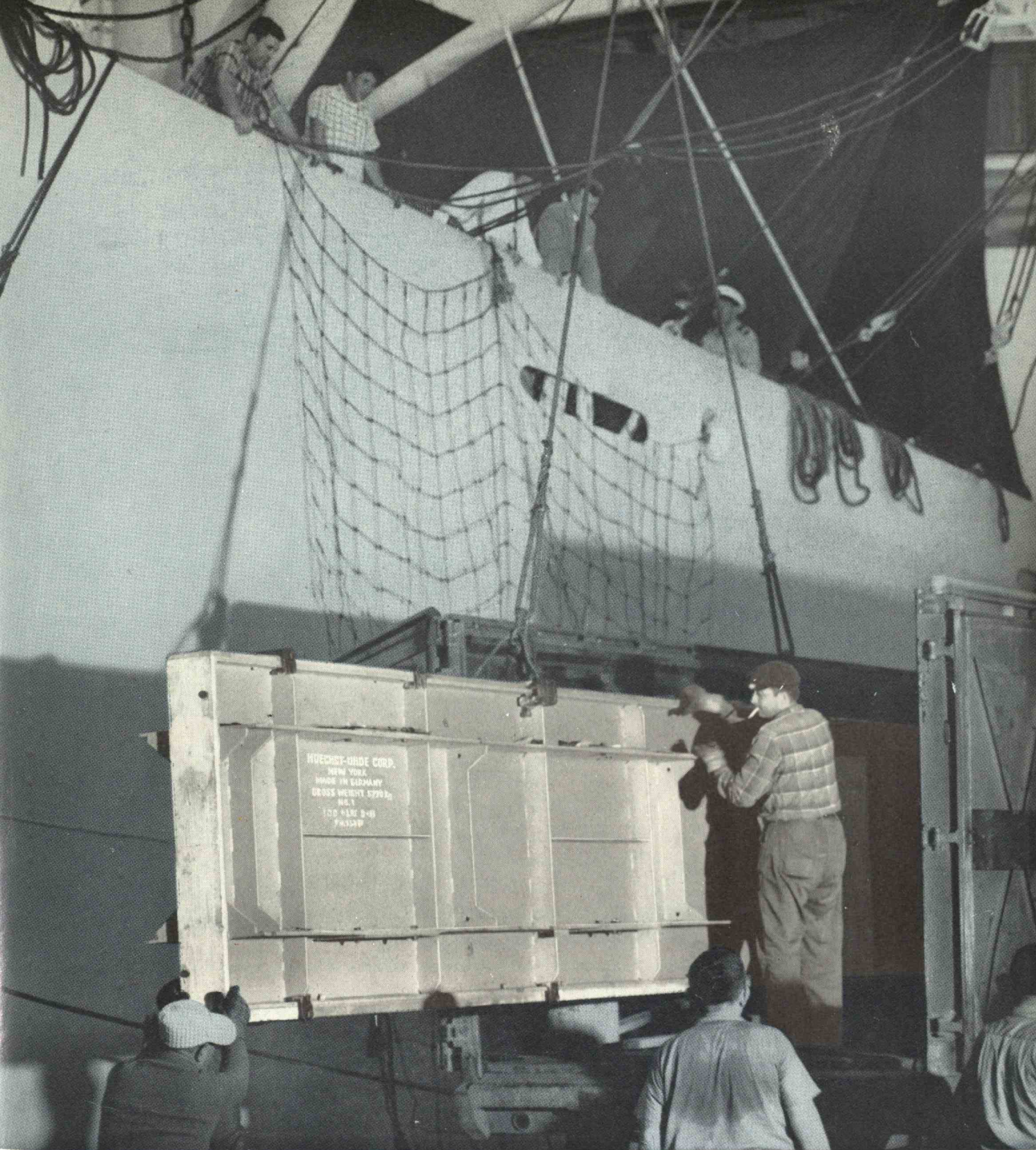
After tours and demonstrations of scientific and engineering research projects pertinent to human health, Alumni Day guests will hear a discussion of "Servomechanisms in Living Systems" arranged by Dean Emeritus George R. Harrison of the School of Science.

Luncheon will be served, as in other years, in tents in the Great Court. President Julius A. Stratton, '23, will report then on the great changes in the Institute, and 25, 40 and 50-Year Class Gifts will be announced.

There'll be a party on the West Mall after the day's stimulation, and members of classes will be seated together for dinner in Rockwell.

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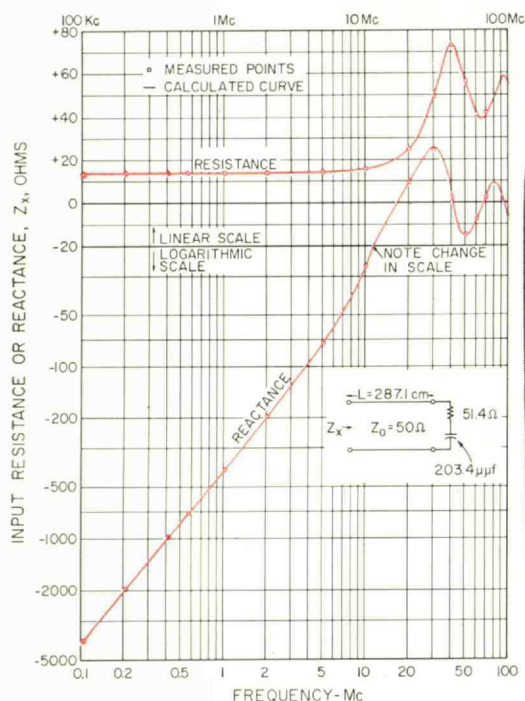


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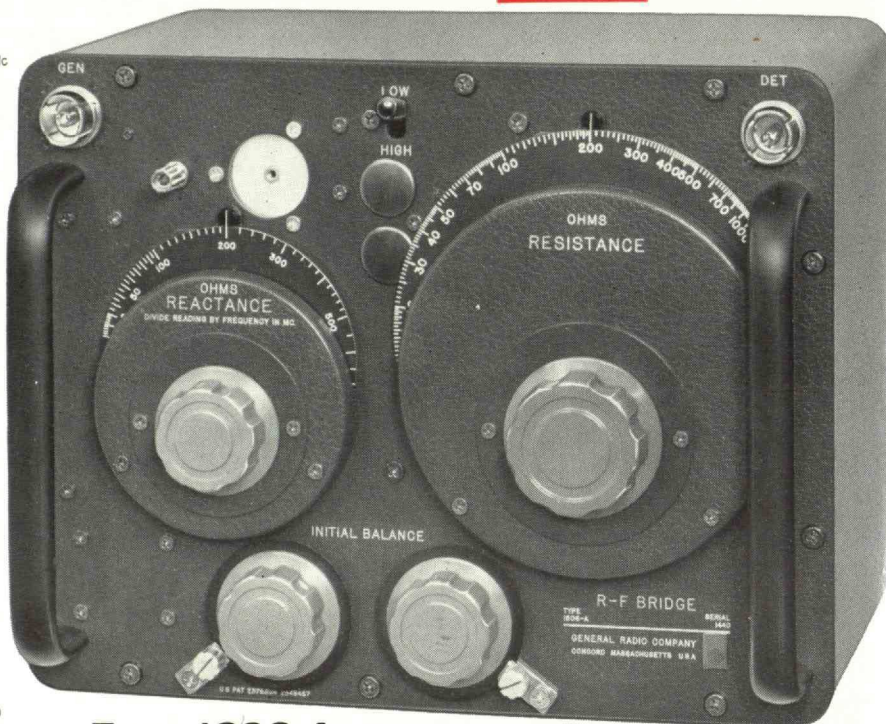
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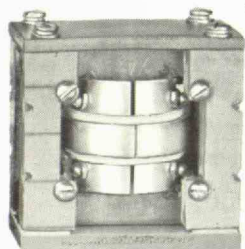


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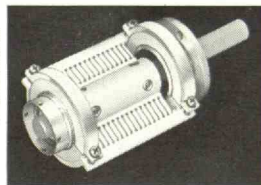
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